

*The relationship between working alliance and treatment outcomes in remedial instruction for  
older dyslexic children*

*by*

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## Abstract

Research in psychotherapy has demonstrated that a positive working alliance between therapist and client leads to positive treatment outcomes. Though its focus is in the area of psychotherapy, the concept of working alliance holds significant value to the area of education. Current applications of the theory in educational settings have looked at relationships between teacher and students in the broad context of classroom interaction and found significant promise. The present study investigates the application of the theory of working alliance in a sample of older reading disabled children. The study examined the psychometric properties of the Reading Alliance Scale for Children (RASC) and for Teachers (RAST) in relation to student reading ability and motivation. A sample of 254 (66.1% male, 33.9% female) grade 6-8 students (mean age 12.7 years) were enrolled in a remedial reading program for reading disabled children. The average standard score across multiple reading measures was more than 1 SD below age-level expectations. Students responded to measures of reading achievement and motivation at pretest, after 70 hours (post 70) of remediation and at the end of the program (post 125). All participants completed measures on the working alliance relationship at post 70 and post 125. Results showed that teacher reports were most predictive of outcome compared to student reports of the working alliance relationship. Working alliance was correlated with posttest reading ability and motivation. Male students and Black students obtained the weakest working alliance reports from their teacher. Overall, findings support the view that students' relationships with teachers provide an important component of success in the classroom.

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## **Introduction**

Recent research on classroom relationships indicates that an affective relationship between students and their teacher is critical for school success. It is evident that the relationship between students and teachers remain an important component of school adaptation in the early grades (Pianta, Steinberg & Rollins, 1995) and of academic and behavioural success in later grades (Pianta & Hamre, 2001). Being an important component of school success researchers have explored the various theories of teacher-student relationship and how this relationship influences student school functioning and success. The theory of working alliance, a psychotherapy concept emphasizing client-therapist collaboration (Bordin, 1979), provides a framework for understanding the teacher-student relationship. DiGiuseppe, Linscott and Jilton (1996) define the concept of working alliance as “a contractual, accepting, respectful, and warm relationship between a child/adolescent and a therapist for the mutual exploration of, or agreement on, ways that the child/adolescent may change his or her social, emotional or behavioural functioning for the better, and the mutual exploration of, or agreement on procedures and tasks that can accomplish such changes” (p. 87). Despite its potential application in a variety of settings (Bordin, 1979; Rogers, 2009) the concept of working alliance has yet to be applied in research within educational settings. A comprehensive description of the concept of working alliance, and an understanding of how the construct works within educational settings is limited by the meagre amount of empirical research in the field. Therefore, within teaching and learning, it is important to fully understand the concept of working alliance and its relationship with the overall achievement and performance of students in the classroom.

Reading disability among older children has been attributed in part to the lack of early or effective intervention at school entry (Roberts, Torgesen, Boardman, & Scammacca, 2008).

Reading disability among older children are characterized by problems with fluency and text comprehension (Alexander & Slinger-Constant, 2004), among other emotional difficulties due to their inability to read compared to their same aged peers (Willcutt & Pennington, 2000). Many reading researchers have identified explicit and direct instruction as strategies that are crucial to effective remediation (e.g., Torgesen, Alexander, Wagner, Rashotte, Voeller & Conway, 2001). Furthermore, research on classroom relationships has identified associations between positive teacher-student relationship and student academic and behavioural success (Hamre & Pianta, 2001). Students who develop early positive relationships with their teacher tend to benefit from the affective bond through teacher acts of encouragement and support for their school work. The relationship developed over time tends to predict future gains in student academic and behavioural achievement. It is suspected that the relationship developed between a reading disabled student and his/her reading teacher will lead to positive gains in reading. It is reasonable to assume, then, that just as current research on the working alliance has shown a consistent moderate association of the working alliance to psychotherapy outcomes among child and adolescent samples (Shirk & Karver, 2003), so too may research reveal a similar association between the teacher-student working alliance and the outcomes of reading remediation.

The present study sought to explore this possibility by investigating the working alliance relationship between a group of reading disabled students and their reading teacher in a reading program designed to remediate students' reading disability. The study also examined the relationship between the working alliance and student reading ability and motivation.

## **Theoretical framework: Working Alliance**

Researchers within psychotherapy have identified that an attachment to and identification with the therapist leads to the formation of a therapeutic relationship between a patient and a therapist (Zetzel, 1956). Early formulations of the theory include the theory of transference: the displacement of early childhood fantasies on the therapist during treatment (Zetzel, 1956). Other theorists identify the concept as the establishment of rapport, the client's willingness to cooperate and, most importantly, the therapist's analyzing behaviour (Greenson, 1965). Greenson (1965) noted that the working alliance becomes possible when the patient makes a "partial identification with the analyst's approach" while the analyst "attempts to understand the patient's behaviour" (p. 156). Within the different approaches researchers have identified the importance of the working alliance relationship in psychotherapy. Although the concept of working alliance in psychotherapy dates back to early psychoanalytic theories, Edward Bordin (1979) has provided the most prominent theoretical description of the term in recent times. His conceptualization of the term is a result of efforts to provide what he called a pantheoretical model of the working alliance that suggests that a working alliance between client and therapist ensures that the client will follow treatment faithfully in order to achieve successful outcome (Bordin, 1980; Horvath & Symonds, 1991). Thus, the relationship per se is not an end in itself but rather facilitates the therapy process.

The working alliance as conceptualized by Bordin (1976) encompasses change situations in relationships. What makes his conceptualization different from others is the emphasis on mutual collaboration between therapist and patient, where the collaborative effort leads to successful outcomes. Bordin (1979) identified the working alliance as a combination of three

components: goals, tasks and bond. The working alliance comprises “an agreement on goals, an assignment of tasks or a series of tasks, and the development of bonds” (Bordin, 1979, p. 253). Tasks refer to behaviours and cognitions that occur in therapy; goals on the other hand refer to therapist and client mutual values about the therapy situation; and bonds refer to the development of personal attachment (Horvath & Greensberg, 1989). Tasks or the assignment of tasks “involves an agreed-upon contract” between therapist and patient on the interactions between the two parties (Bordin, 1979, p. 245). This generally consists of behaviours that characterize the therapy session. To achieve these tasks both parties must be willing and able to perform them (Horvath & Greensberg, 1989). Bond involves the mutual collaboration between the therapist and the patient that builds trust and attachment (Bordin, 1979). In research leading to the development of the Working Alliance Inventory, Horvath and Greensberg (1989) identified intercorrelations among the three components. They stated that the three components play functionally distinct roles in the different stages of therapy to perform different functions in the process of alliance formation. Shirk and Saiz (1992) also observed intercorrelations among the three components while developing the Therapeutic Alliance Scale for Children (TASC).

### **Working Alliance in child and adolescent therapy**

Research on working alliance has focused on the development of positive client-therapist relations with child and adolescent samples (Shirk & Saiz, 1992; Eltz, Shirk & Sarlin, 1995; Kazdin, Whitley & Maciano, 2005). Shirk and Saiz (1992) proposed a model that identifies three main social-cognitive mediators of alliance formation in children: children’s self-evaluation of their problems, their attributions, and expectations for treatment. This model explains factors that interfere with a child’s motivation to engage in therapy and the development of a successful

alliance. The authors identified that age tended to influence a child's willingness to engage in therapy tasks. According to Shirk and Saiz (1992) at a younger age children usually lack the cognitive ability and internal motivation required for engagement in therapy tasks. However as children develop to full cognitive functioning by middle childhood they will increase in their internal attributions of their problems (Shirk & Saiz, 1992) and make gains from the working alliance relationship. Also from the same study, Shirk and Saiz (1992) found that both therapist and child ratings of the affective quality of a therapeutic relationship are equally relevant to the assessment of treatment outcomes. The authors noted that child and therapist ratings need not be interchanged since they both make "a unique contribution to understanding the affective quality of the therapeutic relationship" (Shirk & Saiz 1992, p. 719). The findings suggest that children with positive perceptions or expectations of their therapist and the therapy session share more information with the therapist and are more likely to collaborate more with therapy tasks. Consistent with this perspective, Barish (2004) found that a positive affective relationship between therapist and child client is associated with child's cooperation with therapy tasks. He identified five phases of the therapeutic process in child psychotherapy: "the phase of engagement and the enhancement of positive affect", "the development of increased tolerance for, or the regulation of, negative affects", the incorporation of a socialization component, "the resolution of symptoms and inhibitions and insight" and "the amelioration of pathogenic family relationships and the development of more empathic and growth promoting relationships" (p. 388). Though his ideas are not specific to the theory of working alliance he makes specific reference to an affect-centered approach to therapy that holds similar tenets to the theory of working alliance. Barish (2004) maintained that the establishment of a collaborative bond between child patient and therapist makes the child feel "known and understood" (p. 398) and

more likely to collaborate with therapy tasks. Eltz et al., (1995) in a study with 38 psychiatrically hospitalized adolescents, found that adolescents who had high levels interpersonal problems and more negative attitudes about the therapy situation were less likely to collaborate with therapy tasks. On the other hand, adolescents who showed less interpersonal problems tended to develop a positive working alliance over time. It is clear that the nature of the working alliance formed is dependent on the affective relationship developed during therapy with child and adolescent participants. A meta-analysis by Shirk and Karver (2003) showed a moderate relationship between working alliance and treatment outcome among child and adolescent samples across treatment types. This study remains consistent with research with adult samples that shows a consistent relationship between working alliance and outcome regardless of treatment type (Horvath & Symonds, 1991).

### **Factors influencing the working alliance relationship**

Researchers have consistently identified that a strong working alliance is predictive of positive treatment outcomes (Horvath & Symonds, 1991; Martin, Garske, & Davis, 2000). Others have also noted that a strong working alliance is therapeutic in itself regardless of the type of treatment (Martin et al. 2000). Similarly, Bordin (1979) also noted that the strength of the alliance is a function of therapy effectiveness. Within child and adolescent samples Shirk and Saiz (1992) have found associations between the working alliance relationship and treatment outcomes. Other researchers have also made similar findings across treatment types (Shirk & Karver, 2003). Among child and adolescent samples a number of factors explain the nature of the working alliance formed and its relationship to treatment outcomes. These factors influence the type of relationship formed and the resulting outcomes. Among these factors are therapist

and client factors, such as personal characteristics and interpersonal skills. According to Horvath and Greensberg (1989) factors such as the therapist's theoretical framework and the context of the treatment situation are both necessary for the formation of a working alliance. Research indicates that an early working alliance is predictive of positive treatment outcomes (Horvath, 1994). Patient and therapist contributions are equally relevant as both parties bring to the interaction a personal history or style (Henry & Strupp, 1994; Horvath & Luborsky, 1993) that contributes to their perception of the relationship or their collaboration with therapy tasks. Bordin (1979) noted that "the strength of the working alliance is a function of the closeness of fit between the demands of the particular kind of working alliance and the personal characteristics of the patient and therapist" (p. 253). Henry and Strupp (1994) also note that positive therapist facilitation and encouragement of appropriate behaviours together with client interests and capacities for attachment lead to the formation of positive working alliance. Dunkle and Friedlander (1996) examined the relationship between therapist level of experience and personal characteristics on client perceptions of the alliance early in treatment. Results from the study showed that therapists who reported less hostility, more closeness and social support also reported greater bond with their client. This finding is consistent with work by Bordin (1979) and Henry and Strupp (1994) who noted the equally significant contribution of the therapist in the formation of the working alliance. Eltz et al. (1995) found that adolescents who had a history of maltreatment reported weak initial alliances with their therapist. However those who did not made positive gains in outcome. The authors also found that adolescents who had an initial positive approach to treatment were better at relating to their therapist than adolescents who began treatment with negative perceptions.

In a study of 107 men participating in a cognitive-behavioural group treatment program for partner violence, Taft, Murphy and Musser (2004) concluded that patients with psychopathic traits indicated negative alliance ratings on the Working Alliance Inventory (WAI) both early and later in therapy. Motivational readiness to change mediated the relationship between psychopathic characteristics and the early formation of alliance between therapist and the patient making motivational readiness to change an important factor in the formation of an alliance (Taft et al, 2004). In a study of child-therapist and parent-therapist alliance in relation to the treatment of oppositional, aggressive and antisocial behaviour, Kazdin and colleagues (Kazdin et al, 2005) found that positive child-therapist alliance was related to greater therapeutic change in the child whereas a positive parent-therapist alliance during the child's treatment was related to positive improvement in the child's treatment outcomes. It is possible that the working alliance relationship among children and adolescents may be influenced by their developmental level or social orientation to treatment (Shirk & Saiz, 1992; DiGiuseppe et al. 1996). Several researchers have noted that child and adolescent patients may find it challenging to agree on goals or perform tasks because they are usually not self-referred to treatment compared to adults (Shirk & Siaz, 1992; Shirk & Karver, 2003; DiGiuseppe et al. 1996). Thus it is crucial for child and adolescent participants to be self motivated in order to actively to engage in therapy and eventually form a working alliance.

Horvath (as cited in Horvath & Luborsky, 1993) also identified certain influential factors in the development of an alliance. Interpersonal capacities, intrapersonal dynamics and diagnostic features of the patient have been identified as potential variables that influence alliance formation. Similarly, Eltz et al. (1995) found that interpersonal problems, interpersonal expectations and social competence appeared to influence the development of alliance in



adolescents with clinical diagnosis of major depression, dysthymia and conduct disorder. It is important to note that these factors only influenced the initial stages of the therapeutic relationship but not the treatment outcomes since the alliance continued to be the main predictor of outcome in these studies.

Although research suggests that personal qualities of the patient and therapist may influence the formation of a working alliance (Horvath & Luborsky, 1993; Dunkle & Friedlander, 1996) other studies have found no significant relation between socio economic status, stress (Kazdin et al, 2005) and ethnicity (Taft et al, 2004) in working alliance formed among adult samples. Moreover, no studies of child and adolescent samples have looked at the influence of the child's demographic characteristics on the formation of working alliance. Thus, it remains unclear which patient or therapist characteristics influence the working alliance relationship among child and adolescent samples.

The present study will examine the relationship between working alliance and reading outcomes within a group of older reading disabled children. It is expected that a positive working alliance reported between students and their reading teacher will be associated with positive reading gains in the student. The current study will also examine whether student demographic characteristics influence reports on the working alliance among students and their reading teacher.

### **Working Alliance in teaching and learning contexts**

Although the theory of working alliance is a psychotherapy concept, its basic tenets of goal setting, task performance and mutual bonding exist in a variety of settings. Bordin (1979) noted that the theory "can be defined and elaborated in terms that make it universally applicable"

(p. 252). Several researchers have identified the potential application of the concept in a variety of settings, such as health (Fuertes, Mislowack, Bennett, Paul, Gilbert, Fontan & Boylan, 2007), community (Hentschel, 2005) and teaching (Robertson, 1996; Rogers, 2009). Researchers like Rogers (2009) have suggested the potential benefit of the theory to the teaching and learning field. He identified that the concept of the working alliance can be applied to any change situation that involves interaction and collaboration to achieve goals. Similarly, Bordin (1979) also noted that the theory remains applicable to change processes in teaching and community settings. While these claims suggest the potential application of the working alliance to teaching and learning contexts the actual extent of these assertions has yet to be empirically studied.

To date, there are no empirical studies on the working alliance among child/ adolescent students and their teachers in a classroom setting. Several researchers have sought to apply the concept of working alliance in teaching and learning contexts by studying teacher-student relationships (Koch, 2004; Robertson, 1996; Painta et al., 1995). Though some of these ideas were not clearly defined within the specific theory of working alliance the authors identified a potential link between the teaching relationship and positive learning outcomes. For example, in a study on transformative learning in adult education, Robertson (1996) maintained that teacher-student helping and mentoring relationships were predictive of student performance. Also, in one study with a sample of 172 children followed from kindergarten to grade eight, Hamre and Painta (2001) found that children who formed positive relationships with their teacher from kindergarten reported better academic and behavioural adjustment in the eighth grade. Although these studies are not situated within the working alliance framework they highlight the importance of the teacher-student relationship in predicting student academic and behavioural success. It is important to note that the focus of these studies has been on teacher reports

compared to student reports of the relationship. It is possible that student reports may influence aspects of the relationship as well as outcomes gained. The equal evaluation of the teacher-student relationship by both students and teachers is a prime focus of the working alliance theory. In the present study both student and teacher reports are investigated to determine their association with student reading and motivation.

According to Rogers (2009) research applications of the working alliance in teaching and learning contexts require a clear articulation of the theory of working alliance and the development of appropriate measures to “accurately capture the working alliance concept in practice” (p. 6). The current study seeks to fill this gap in the literature with the development of the Reading Alliance Scale for Children (RASC) and teachers (RAST) for the specific context of reading. Furthermore the present study will examine the application of the working alliance in a teaching and learning setting. In the specific area of reading, the concept can be applied in the instructional and social context of teacher-student relationship. Since there have been no studies examining the teacher-student relationship among reading disabled children within the working alliance framework this study is also aimed at bridging that gap.

### **Reading disability<sup>1</sup>**

Reading disability is identified as a complex multidimensional disorder with several components (Pennington, 2006). It has been defined as the inability to identify the “sound

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<sup>1</sup> The term ‘dyslexia’ is mostly used in the medical literature to explain a developmental inability to identify or recognize words. Reading disability on the other hand is used in special education/psychological literature to explain the lack of phonological ability due to either a developmental or environmental inability to identify sound structure of words. In the context of this thesis reading disability will be used to characterise students in the study.

structure of words,” also known as phonological awareness (Shaywitz, Fletcher, Holahan, Schneider, Marchione, Steubing, Francis, Pugh & Shaywitz, 1999, p. 1351) and as usually entailing “precursor problems in highly specific aspects of speech and language development” (Lovett, Barron & Benson, 2003, p. 274). Reading disability goes beyond the inability to read; it is characterized by reading comprehension problems, print difficulties, and problems with spoken language (Shaywitz, Morris, & Shaywitz, 2008; Lyon & Moats, 1997) among other emotional and behavioural deficits (Pennington, 2006; Willcutt & Pennington, 2000). There is also a lack of reading fluency, characteristic of the slow reading patterns also known as manual reading among reading disabled children (Shaywitz et al. 2008). Deficits in phonological processing that continue well into adolescence have been associated with very slow and effortful reading among reading disabled children (Shaywitz et al. 2008). Though it may be a genetically acquired disorder (Voeller, 2004; Shaywitz, 1999) other environmental factors may also contribute to the severity of reading disability (Voeller, 2004; Lyon & Moats, 1997; Pennington, 2006).

Although phonological deficits have been identified in several studies as the main problem among reading disabled children (Shaywitz et al., 2008; Roberts et al., 2008; Lovett et al., 2003) recent studies have identified other potential risk and protective factors that influence the disorder. Some researchers have moved towards a more comprehensive perspective, recognizing the role of diverse factors that contribute to reading disability. Increasing evidence has been advanced on the multiplicity of causes of reading disability and how these interact with the different comorbidities of the disorder. Pennington (2006) argued that the etiology of most developmental disorders stem from several overlapping risk factors that cause “greater than expected co-occurrence of these disorders” (p. 386). This theory proposes that multiple genetic

and environmental risk and protective factors interact to produce a multifactorial disorder that alters the development of cognitive functions that are necessary for normal development. This alteration tends to cause multiple behavioural symptoms characteristic of most behavioural disorders. Comorbidity develops as a result of the shared etiological and cognitive risk factors among the disorders. For example, in studying comorbidity between reading disability and attention-deficit/hyperactivity disorder (ADHD) and speech sound disorder, Pennington (2006) identified that the single deficit model that currently defines developmental disorders is inadequate because such disorders are usually comorbid. Discussing reading disability in other languages, Pennington (2006) concluded that “a phonological deficit is not the main cause of reading disability in all languages and suggest that in some languages...multiple deficits are usually required” (p. 403). Researchers have identified that children with reading disabilities are more likely to show more behavioural problems compared to children without reading disability (Willcutt & Pennington, 2000). The authors maintain that reading disabled children are most likely to exhibit more internalizing and externalizing behaviour than children without reading disability.

### **Reading disability among older dyslexic children**

Among older children, the prevalence of reading disability has been attributed in part to lack of early or effective reading instruction (Foorman & Torgesen, 2001; Lyon & Moats, 1997). Roberts et al. (2008) also added that older reading disabled children are “victims of poor early reading instruction” (p.63). This point has been consistently echoed by other reading researchers who agree that late diagnosis or the lack of effective early intervention contributes to adulthood

reading disability. Research findings have concluded that early detection followed by early intervention usually produces significant gains in young children with reading disability when appropriately supported through later grades (Robert et al. 2008; Shaywitz et al. 2008; Alexander and Slinger-Constant, 2004). Older children with reading disabilities tend to “read slowly and with effort, labouring over new and unfamiliar words” (Roberts et al. 2008) indicative of manual reading (Shaywitz et al. 2008), a major problem for older reading disabled children. In one longitudinal study with a group of high school students followed from kindergarten, Shaywitz et al. (1999) identified that reading disability in older children tends to be stable over time. This implies that a child with a history of reading disability will typically continue to be a poorer reader compared to other children the same age without reading disability. This is consonant with findings by Alexander & Slinger-Constant (2004) who explained that though older reading disabled children may have the ability to recognize words they usually lack the fluency and automaticity that characterize the reading of the unimpaired reader. The problem with fluency among older reading disabled children has been identified by Torgesen (2005). He explained that the problem with fluency may lie in the very nature of fluency, in that, as the child’s reading problem continues to persist there is a lack of reading engagement and practice. This lack of reading engagement most often results in very little exposure to new words or the development of a “sight word vocabulary”. This lack of sight word vocabulary prevents older reading disabled children from closing the gap in fluency even if other reading disability have been remediated. This finding suggests that in order for older reading disabled children to gain fluency they will require intensive practice that will enhance their sight word vocabulary.

The complexity of treatment for older reading disabled children has been highlighted in a number of studies (Lyon & Moats, 1997; Shaywitz et al. 1999; Alexander & Slinger-Constant,

2004; Lovett, Lacerenza, Borden, Frijters & Steinbach, 2000; Lovett et al. 2003). Lyon and Moats (1997) noted that the challenge of intervention for reading disability is daunting. This difficulty may also be explained by the several causal elements and comorbidities that develop as a result of the disability. Pennington (2006) argued that a new focus that considers the multiple deficit model will lead to a better understand of reading disability and thus lead to better intervention programs. A good knowledge of how shared etiological, cognitive and neural deficits overlap to produce the different symptoms will lead to more positive outcomes for older reading disabled children. It is therefore important to evaluate theories and intervention programs that address the various components to remediation.

### **Remediation for older reading disabled children**

Although remediation for older reading disabled children may seem challenging it is clear that deficits in reading fluency are not easily remediated. Most reading researchers have noted fluency as a major difficulty among older reading disabled children (Torgesen, 2005; Shaywitz et al. 1999). Alexander and Slinger-Constant (2004) noted that a systematic phonics approach to reading instruction leads to significant gains in word accuracy among older reading disabled but not in the development of fluency. The authors maintain that students will continue to read slowly even though they may recognize, comprehend and pronounce the words properly. Shaywitz et al. (1999) further noted that though older reading disabled children may have deficits in reading fluency the addition of extra time will allow them to carefully decode and recognize words. They highlighted that “the provision of extra time” will allow them “time to decode each word and to apply their unimpaired higher-order cognitive and linguistic skills to the surrounding context to get at meaning of words that they cannot entirely or rapidly decode”

(Shaywitz et al., 1999, p. 1358). Thus, it is important for remediation programs to reading skills and strategies to enable student to make gains by using their unimpaired higher order and linguistic skills. Whereas reading remediation programs may be successful among a sample of younger children remediation for older children on the other hand has seen little progress (Torgesen, 2005). Older children continue to lag behind their peers in reading due to the challenge of fluency (Torgesen, 2005).

Though previous research has showed little remediation success for older reading disabled children, recent studies have indicated otherwise. According to Lyon and Moats (1997) intervention programs that teach phonological processing and reading comprehension must also teach reading disabled children fluency and transfer skills. They further noted that fluency and transfer of phonological concepts are not easy to grasp for reading disabled children who have received training in phonological and phonics concepts. The authors noted that it is far easier to achieve results in reading accuracy and word identification among older children but not with fluency. They explained that “systematic instruction that links reading skills” will “foster the development of componential skills and their relationship to one another and the development of fluency” (p. 582). One such systematic instruction is the PHAST Track reading program by Lovett and her colleagues (Lovett et al. 2000). According to Lovett et al (2003), intervention for reading disabled children should focus on a combined intervention model compared to a solely phonologically based approach. Current research shows that significant gains could be made in the area of remediation among older reading disabled children (Lovett et al, 2000). Lovett and colleagues in a study with a group of older reading disabled children have highlighted the effectiveness of an intensive phonological and strategy based approach to remediation (Lovett et al. 2000). Their study addresses elements of intensive, explicit and direct instruction that most



effective remediation programs need. In a small group setting, these programs reinforce positive skills in and strategies that facilitate improvements in motivation and reading engagement for struggling readers.

### **Remediation context**

It is very important to consider the context of remediation as it pertains to the success of the remediation program (Lyon & Moats, 1997). Though studies have investigated the context of remediation, not many have focused on how the relationship between teachers and students may influence the effectiveness of the reading intervention and the remediation outcomes for students. It is possible that teacher variables such as teacher support and encouragement, (Foorman & Torgesen, 2001; Lyon & Moats, 1997), teacher training or qualification (Blachman, Schatschneider, Fletcher, Francis, Clonan, Shaywitz & Shaywitz, 2004; Moats, 1994) and grouping (Vaughn, Hughes, Moody & Elbaum, 2001; Rashotte, MacPhee & Torgesen, 2001) can affect treatment outcomes in reading disabled children. According to Foorman and Torgesen (2001), reading disabled children require emotional and cognitive support during remediation in order to enhance effective instruction. They explain further that an emotional atmosphere of encouragement, positive feedback as well as a cognitive support such as scaffolding were crucial for effective instruction. Providing effective remediation for older reading disabled children who experience the frustration of not being able to read requires that teachers attend to their emotional needs. This suggests that the process of reading change needs to be closely monitored in relation to other contextual factors such as “setting, classroom climate, task/material, instructional grouping, type of teacher-student interaction etc.” (Lyon & Moats, 1997, p. 579). The support of teachers is vital to the progress and achievement of older reading disabled children, thus the need to focus on the emotional aspect of the disorder since it may impact

remediation outcomes. In a review by Foorman and Torgesen (2001) a reading curriculum that allowed teachers choices and a moderate amount of phonemic awareness activities yielded more positive results in kindergarten and grade one children compared to a curriculum that allowed less teacher choice and a more explicit instruction in phonemic awareness. Foorman and Torgesen (2001) argued that a teacher-friendly curriculum that allows teachers more choices, support and training will more likely lead to successful remediation of reading disability.

Different intervention programs have focused on remediating different aspects of reading deficits such as word recognition, fluency, reading comprehension (Shaywitz et al. 2008), and vocabulary instruction and motivation to read (Roberts et al, 2008) in reading disabled children. Others have noted the need for a positive affective relationship between teachers and students. These ideas remain interesting; however there is a lack of direct evidence to support them. The present study will use the concept of the working alliance to address the affective context of the teacher-student relationship during a remedial reading program.

### **Working alliance and motivation for reading**

To date there has been no study to address the relationship between working alliance and motivation. However, few studies have mentioned client motivation as a predictor of client collaboration with therapy tasks (DiGuiseppe et al., 1996; Greenson, 1965). For example, Greenson (1965) identified that working alliance is formed by the client's motivation and ability to work with the therapist in the treatment situation. He further noted that patients who were unmotivated through the therapy process were patients who were unable to get beyond the preliminary phases of analysis. DiGuiseppe et al. (1996), in a study of the change and process variables in child and adolescent therapy, noted that teaching emotional skills, encouraging

motivation and the desire for personal change enables child and adolescent patients to appreciate therapy goals and more willing to engage in therapy tasks. DiGiuseppe et al. (1996) identified that since children are not self-referred to treatment it becomes difficult to get them involved in therapy tasks. Child and adolescent patients may not “acknowledge the existence of problems and are often unmotivated to change” (DiGiuseppe et al., 1996, p. 88). This finding highlights the importance of the three components of working alliance to therapy success. For example, as Shirk and Saiz (1992) have proposed, children who have secure attachment usually find it easier to engage in therapy as they tend to be more responsive and less resistant to interview questions compared to insecurely attached children. In their discussion of the socio-cognitive factors that mediate the formation of the alliance, these authors identified that a children’s self evaluation and the ability to form internal attributions about their behavioural and emotional problems as well as beliefs that their efforts can cause change are vital to the formation of a positive working alliance. Thus children who believe that their efforts can result in effective therapy outcomes will be more likely to actively engage in therapy tasks to achieve their goals. Since the agreement on therapy tasks is most predictive of therapy outcomes, an individual motivated to engage in treatment is more likely to make significant gains.

Within teaching and learning contexts motivation is most effective in the presence of a significant other (Ryan & Deci, 2000). According to Rogoff (1998), engaging in collaborative learning is important in the development of intrinsic motivation among children. Baker and Wigfield (1999) note that readers need to possess more than just cognitive skills necessary for reading. All these studies highlight the importance of motivation in the context of teaching and learning. Although general consensus among reading researchers maintains that older reading disabled children lack the motivation to read (Roberts et al., 2008; Voeller, 2004), there have

been no substantial studies to test this assertion. The current study will examine the relationship between working alliance and motivation for reading using the Intrinsic Motivation Inventory (IMI; Ryan, 1982). It is expected that students who report high working alliance with their teacher will also report a high motivation for reading.

### **The present study**

While the effects of a positive teacher-student relationship on student achievement has been researched in the context of teaching and learning much has yet to be done with a sample older reading disabled children. Also, current research on the working alliance with child and adolescent samples seems to be lacking. The current research seeks to fill the gap in the literature by investigating the application of the working alliance in the context of a remedial instruction program for older reading disabled children. Specifically, the study explored teacher-student reports on the relationship and how these reports are differentially related to motivation, reading skills and subskills, and treatment outcomes. Another focus of the study was to examine the relationship between teacher-student working alliance and student's motivation for reading.

### **Aims and objectives**

This study has four objectives:

1. To examine the applicability of the concept of working alliance in a remedial instruction program for older reading disabled children.
2. To assess the psychometric properties of the Reading Alliance Scale for Children (RASC) and the Reading Alliance Scale for Teachers (RAST).
3. To examine the relationship between working alliance and reading ability.

4. To examine the relationship between working alliance and motivation.

### **Research questions and hypotheses**

Research on the working alliance has consistently shown that a positive relationship between therapist and patient leads to positive outcomes in both adults and children (Hovath & Symonds, 1991; Martin et al., 2000). According to Rogers (2009) the working alliance, when appropriately defined, could serve as a useful tool for educational researchers and practitioners. The claim that the working alliance is applicable to different contexts leads to questions about its measurement and how effective those measures will be in predicting outcomes. The current study addresses broad questions about the application of the concept of the working alliance to the relationship between teacher and student in remedial instruction for reading disability among older children. It looks at the psychometric properties of the Reading Alliance Scale for Children and Teachers such as reliability of the scales. It also examines the relationship between the working alliance and variables such as reading ability and motivation.

The following questions were addressed in the study:

1.
  - a. Are the Reading Alliance Scale for Children (RASC) and Teachers (RAST) reliable measures of the working alliance between students and teachers in a reading remediation program? Past research on working alliance measures have reported moderate to high reliability of the different measures (Horvath & Symonds, 1991; Martin et al, 2000; Shirk & Saiz, 1992). Based on these findings, it was expected that both the RASC and RAST scales will show moderate to high internal consistency reliability coefficients. In addition,

it was expected that the scales will effectively predict the working alliance relationship between students and their reading teacher?

- b. Is there a relationship between teacher and students ratings on the working alliance scales? Based on past research by Shirk and Saiz (1992) it is expected that there will be a positive correlation between teacher and student ratings of the working alliance.

2. What is the relationship between the working alliance and child's age, gender, ethnicity and grade? Past research in psychotherapy has indicated a possible link between participant characteristics and the formation of a working alliance (Horvath & Luborsky, 1993). It is expected that participant characteristics will significantly influence the working alliance reported. Past research on teacher-student relationship have also found demographic characteristics to influence the relationship (Hamre & Painta, 2001). Based on this finding, it is expected that student age, gender and ethnicity will influence reports of the working alliance relationship in this study.

3. What is the relationship between the working alliance and reading skills?

It was hypothesized that students who reported high ratings on working alliance with their teacher will have significantly higher reading scores. This hypothesis is based on past research on the relationship between working alliance and outcome (Horvath & Symonds, 1991). Although no studies have been conducted in the specific field of reading disability it is expected that positive ratings of working alliance between student and teachers will be significantly related positive reading achievement in the program.

4. Is there a relationship between working alliance and motivation?

Past research has shown possible links between working alliance and motivation for change (Taft et al. 2004). Based on research about client motivation as a predictor of

client collaboration with therapy tasks (e.g. DiGuiseppe et al., 1996), the current study examined the relationship between working alliance and motivation among students.

5. What are the characteristics of students who were rated poorest by their teacher on the working alliance? Based on past research on teacher differential expectations of low and high achieving students (Weinstein & Middlestadt, 1979) it was expected that low achieving students will be rated differently by their teacher on the working alliance relationship.
6. What are the basic predictors of student and teacher reports of the working alliance at the initial phase of treatment? Past research has identified the importance of the working alliance relationship formed in the initial phase of treatment (Horvath & Luborsky, 1993). Additionally, research shows that patient and therapist characteristics influence initial reports of the working alliance. Based on these findings it is expected that students and teacher initial reports of the working alliance will be predicted by student's age, gender, ethnicity, prior language and cognitive abilities, and IQ.

## **Method**

### **Participants**

Participants were 254 (66.1% males, 33.9% females) grades 6 to 8 students (mean age 12.7 years) with reading disability selected from an on-going study by the Learning Disabilities Research Program (LDRP) at The Hospital for Sick Kids sites in Toronto and Atlanta. Data were collected at the two sites by personnel from the Learning Disability Research Program (LDRP). Analysis of data for this thesis included data entry, cleaning, and analysis of specific aspects of participant variables that were included in the research questions and hypotheses for this study.

Participants were mostly Caucasian, 114 (44.9 %), and Black, 99 (39.0 %), with few Hispanic, 27 (10.6 %) and other ethnicities (Asian, Pacific Islanders, Indigenous), 14 (5.5 %). Participants entered the program with significantly lower reading ability than similar aged peers. The average standard score across multiple reading measures was more than 1 SD below age-level expectations. See table 1 for summary of participant age, reading ability, phonological ability and IQ. Table 1

*Summary table of participant age, reading ability, IQ and phonological ability.*

Variables		Mean	SD
Age		12.7	1.0
WJ	Word Attack	82.1	8.6
	Passage comprehension	78.4	11.3
	Word identification	78.3	11.2
WASI	Verbal IQ	87.1	10.7
	Full scale IQ	88.2	10.2
CTOPP	Blending words test Phoneme	8.2	2.5
	Reversal test	6.9	1.9

It is worth noting that the sample size tends to differ for some of the analyses. Some analyses include the full sample size of 254 participants while for some it is reduced because those analyses include the teacher ratings, some of which were not filled out (N = 147), and some reduced even further (N = 67) because teacher ratings at post 125 were included, a situation that involved both program dropouts and lack of teacher response.

### **Patterns of missing data**

To determine the types of missing data in the study, it is important to discuss the three ways by which data can be considered missing. Data could be Missing Completely At Random (MCAR), Missing At Random (MAR), or Missing Not At Random (MNAR). Missing at random



(MAR) involves the probability that the missing data is not related to other variables included in the analysis. Schafer and Graham (2002) noted that “MAR allows the probabilities of missingness to depend on observed data but not on missing data” (p. 151). This warrants the inclusion of MAR data in the analysis. Missing Completely At Random (MCAR) is the probability that an observation does not depend on any of the observed or unobserved variables. MCAR data is ignorable since the focus lies on the observed data only. Data is classified as Missing Not at Random (MNAR) when it is not classified as either MAR or MCAR. This means that even when we account for all the observed data, the reason for the missing data still depends on the missing data. When this happens there is no ignoring the extent of the missing data.

Several reasons explain why data may be missing from the present study. Basically if a child’s RASC rating was missing at pretest, it was most likely tester confusion, or probably due to a time/materials issue. It is possible that a child’s RASC data was MCAR implying that the missing data for this variable does not depend on the other variables in the analysis. If a teacher RAST was missing it could have been that the tester did not deliver the RAST to them, but more likely that the teacher either did not fill it out or return the form once filled out. It is possible that data was MCAR implying that the missing data for this variable does not depend on the other variables.

To examine differences in the types of missing data three new variables were created to represent the missing data: *has both RASC 70 and RASC 125*, *has both RASC 70 and RAST 70*, and *has both RASC and RAST at both time points*. For each pattern of missing data t-tests were used to compare the group with missing data to the group with non-missing data, to determine if mean IQ or reading ability differed between the two groups. Also, for each pattern of missing

data, chi-square ( $X^2$ ) tests were used to identify whether the proportion of missing data differed according to grade, gender, and ethnicity.

Results showed the following patterns of missing data.

1. Missing data for both RASC 70 and RASC 125

Reading ability for participants missing data for RASC at post 70 ( $N = 111$ ) were not significantly different from participants who had missing data for both RASC at post 70 and RASC at post 125 ( $N = 143$ ). IQ scores for participants missing data for RASC at post 70 ( $N = 111$ ) were significantly different ( $t(252) = .04, p < .05$ ) from participants missing data for RASC at post 70 and RASC at post 125 ( $N = 143$ ). Chi square test showed that there were no significant differences between male and female participants with missing data only on RASC at post 70 ( $N = 111$ ) and male and female students with missing data on both RASC at post 70 and post 125 ( $N = 143$ ). Chi square tests showed that there was a significant difference in race for students who were missing data only on RASC at post 70 ( $N = 111$ ) and students with missing data on both RASC at post 70 and post 125 ( $N = 143$ ). Chi square analysis also showed a significant difference in grade for students who were missing data only on RASC at post 70 ( $N = 111$ ) and students who were missing data on both RASC at post 70 and post 125 ( $N = 143$ ).

2. Missing data for both RASC 70 and RAST 70

Reading ability for participants missing data for RAST at post 70 ( $N = 107$ ) were not significantly different from participants who did not have missing data for both RAST at post 70 and RASC at post 70 ( $N = 147$ ). IQ scores for participants missing data for RAST at post 70 ( $N = 107$ ) were significantly different ( $t(252) = .01, p < .05$ ) from

participants missing data for both RAST at post 70 and RASC at post 70 ( $N = 147$ ). Chi square tests showed that there was a significant difference in race for students who were missing data only on RASC at post 70 ( $N = 107$ ) and students with missing data on both RASC at post 70 and post 125 ( $N = 147$ ). Chi square test showed that there were no significant differences between male and female participants with missing data only on RASC at post 70 ( $N = 107$ ) and male and female students with missing data on both RASC at post 70 and RAST at post 70 ( $N = 147$ ). Chi square analysis also showed a significant difference in grade for students who were missing data only on RASC at post 70 ( $N = 107$ ) and students who were missing data on both RASC at post 70 and RAST at post 70 ( $N = 147$ ).

### 3. Missing data for RAST 70 and RAST 125

Reading ability and IQ scores for participants missing data for RAST at post 70 ( $N = 187$ ) were not significantly different from participants who did not have missing data for RAST at post 125 ( $N = 67$ ). Chi square test showed that there were no significant differences between male and female participants with missing data on post 70 RAST ( $N = 187$ ) and male and female students without missing data on RAST at post 125 ( $N = 67$ ). Chi square tests showed that there was a significant difference in race for students who were missing data on RAST ( $N = 187$ ) and students who were not missing data on RAST at post 125 ( $N = 67$ ) with Caucasian students obtaining the highest percentage of non-missing data. Chi square analysis also showed a significant difference in grade for students who were missing data on RAST ( $N = 187$ ) and students who were not missing data on RAST at post 125 ( $N = 67$ ) with grade 7 students reporting the highest non-missing data.

With regard to reading ability skills and gender data were missing completely at random (MCAR) thus can be ignored since it brings no differences in the sample. Significant findings obtained for IQ, grade and ethnicity are however missing at random (MAR) hence will need to be interpreted cautiously since it indicates that participants with missing data on these variables were different from those without missing data in meaningful ways that may affect interpretation of the results.

## **Procedure**

Participants were enrolled in a special education reading program for older reading disabled children. The key objective of the program was to teach phonological skills and strategies to remediate reading disability. The program was administered at two time points, 70 hours and 125 hours. Participants were grouped into instructional groups of six to eight students per group. Each instructional group was randomly assigned to a reading teacher who administered the reading program at the two time points. Below is a detailed account of the program.

## **The PHAST Track Reading Program**

The PHAST Track Reading program is a research-based phonological and strategy instruction approach to remediation (Lovett, Lacerenza & Borden, 2000). The program integrates phonological and strategy-based reading instruction in a series of 70-1hour lessons with the goal of remediating reading disability in students. The program provides a combination of direct instruction and a dialogue-based metacognitive approach. The main aim is to overcome problems with word identification and independent decoding and reading skills among struggling readers

(Lovett, et al., 2000). It also aims to teach strategies that will make students gain skills needed to build reading skills and self-confidence and to make meaning from print. It involves five main decoding strategies taught in a sequence to provide children with the ability to independently decode written and spoken words. Strategies include: Sounding Out, a phonological letter-sound decoding strategy; Rhyming, a word identification-by-analogy strategy; Peeling Off, a strategy for separating affixes in multisyllabic words; Vowel Alert, a strategy for working with variable vowel sounds; and SPY, a strategy for seeking out familiar parts of unfamiliar words (Lovett, et al., 2000).

The program is designed such that learning progresses from direct instruction to a metacognitive decoding training by scaffolding. The PHAST program is carefully orchestrated to allow for adequate mastery of previously taught skills and strategies. A new strategy is introduced only when an individual gains the prerequisite skills for a previous strategy.

The final stage of the PHAST program, the Game Plan, involves several metacognitive alternatives that allow for the effective transfer and application of the various strategies in the program. According to Lovett et al. (2000), “the Game Plan is designed to help the children apply all the PHAST strategies and to orchestrate their appropriate selection (different for every word), application, and evaluation” (p. 470). Children are taught the skills and guidelines to develop specific prompts and dialogues needed in successfully identifying words. It uses a wheel that offers students “a formula for strategy selection, application, monitoring, and evaluation” (Lovett et al., 2000, p. 474). The Game Plan comprises the following steps: *Choose*, *Use*, *Check*, and *Score*. Students choose a PHAST strategy, use it to decode the word, check it for correctness and then score if they get it right.

## Measures

All participants completed measures that assessed their reading abilities, language and cognitive skills, IQ, motivation, the working alliance relationship, and demographic information. Demographic information was collected prior to intervention; language and reading sub skills, along with IQ and motivation were also assessed prior to intervention; working alliance was assessed once after 70 hours of intervention (post 70) and once after the completion of intervention (post 125).

### Measures of Reading Ability

The following are the measures used to assess components of reading ability, along with details of administration and published psychometric properties.

**Woodcock Johnson-3 (WJ-3) Tests of Achievement:** To measure student's word reading, reading ability, reading comprehension skills and spelling ability the *Word Identification*, *Word Attack* and *Passage Comprehension* subtests of the Woodcock Johnson-3 (WJ-3) Tests of Achievement (Woodcock, McGrew & Mather, 2001) were used. The *Word Identification subtest* was used as a measure of sight vocabulary. This subtest involves presenting words and letters individually at a five-second time limit each to students with increasing difficulty. In this study, students were presented a list of words in isolation and were expected to identify and pronounce the words. Internal consistency reliability coefficient for this subtest ranges from .91 to .98 across the grade levels as indicated in the examiner's manual of the Woodcock-Johnson Tests of Achievement (WJ-3) (Woodcock et al., 2001). The *Word Attack subtest* was used to test students' phonological ability and analytical skills. It requires students to decode a series of increasingly difficult nonsense words (e.g., nan). The internal consistency reliability coefficient

for this subtest ranges from .89 to .90 across the grade levels in this study (Woodcock et al., 2001). The *Passage Comprehension subtest* was used to assess student passage comprehension and oral language skills. Students were required to listen to a short audio-recorded passage and then supply the missing word. Internal consistency reliability coefficients for this subtest range from .73 to .92 across the grade levels involved in the present study (Woodcock et al., 2001).

**Comprehensive Tests of Phonological Processing (CTOPP):** The Comprehensive Tests of Phonological Processing (Wagner, Torgesen & Roshette, 1999) measure was used to measure phonological ability. The CTOPP provides a reliable measure, with good internal consistency alpha coefficients and test-retest reliabilities for the two subtests and grade levels included in this study. The *Blending Words subtest* is a 20-item measure of students' ability to combine phonemes to form nonwords. Individually presented audiotape phonemes were presented to students that they were required to put together to identify the whole word (e.g., "What do these sounds /can/ /dy/ make?). The average internal consistency reliability is .84 as indicated by the CTOPP examiner's manual for the age groups presented in this study (Wagner et al., 1999). The *Phoneme Reversal subtest* is an 18-item measure used to test students' ability to reorder speech sounds. Nonwords were presented via audio cassette to students who were required to repeat them and to say it backwards to form real words. The average internal consistency reliability is .89 for the age groups presented in this study (Wagner et al., 1999).

### **Measures of Language and Cognitive Abilities**

The following are the measures used to assess student pretest language and cognitive abilities, along with details of administration and published psychometric properties.

**Rapid Automatized Naming (RAN):** To test visual naming speed the Rapid Automatized

Naming Tests (RAN; Wagner, Torgesen & Roshette, 1999) were used. This 72-item measure tests students' ability to rapidly name visual symbols (letters, colours, objects, numbers, or combinations). Students were required to name stimuli (letter and numbers were used for this study) as quickly as possible without making a mistake. The time in seconds to complete the task was used as the outcome measure, so better performance is indicated by lower times. Average internal consistency reliability for this age group as indicated in the examiner's manual ranges between .79 and .87 (Wagner et al. (1999).

**Wechsler Abbreviated Scale of Intelligence (WASI):** To measure students' IQ, the *Vocabulary*, *Similarities*, *Block Design* and *Matrix Reasoning* subtests of the Wechsler Abbreviated Scale of Intelligence (WASI) (Wechsler, 1999) were used. The WASI is adapted from the Wechsler Intelligence Scale for Children–III (Wechsler, 1991) and the Wechsler Adult Intelligence Scale–III (Wechsler, 1997) to provide an abbreviated measure of verbal and nonverbal IQ.

### **Measures of Transfer of Learning Outcomes**

**The Challenge Words Test:** The Challenge Test measure was administered at pretest, midpoint and at posttest. It consists of 30 uninstructed, multisyllabic words that embed keyword spelling patterns and affixes. It was used to test students' ability to transfer learning. This test provides students with the opportunity to apply decoding strategies taught in the PHAST reading program.

### **Measures of motivation and social orientation to literacy and intervention**

The following measures were used to assess student motivation and the working alliance relationship between students and teachers.



**Self-reported Motivation for Reading (The Intrinsic Motivation Inventory—Reading (IMI-Reading):** The IMI was administered to students at pretest, midpoint, and post test. The Intrinsic Motivation Inventory—Reading (IMI-Reading) was adapted from Ryan's (1982) self-report inventory of task commitment. Children responded to 24 computer-administered statements reflecting their Interest/Enjoyment, Perceived Effort, and Sense of Competence. Internal consistency reliabilities as reported in an unpublished research paper range from .85 to .92 for the reading disabled students. Preliminary validation in unpublished analyses from the broader research project shows that the Sense of Competence subscale is responsive to change during intervention; hence it was the only measure tested at mid-point.

**Working Alliance between Student and Remedial Teacher (post 70, post 125):** The Reading Alliance Scale for Children (RASC) and Teacher were used to measure the working alliance relationship between students and teachers. It is an adapted version of the Therapeutic Alliance Scale for Children (TASC) (Shirk & Russell, 1996). The TASC has good internal consistency and test-retest reliabilities and has been validated for use in a range of therapeutic contexts (Shirk & Russell, 1996). The scales contain equivalent items worded from both the patient and therapist's perspective. An example of an item on the child form is "I like spending time with my therapist", and the corresponding item on the therapist form is "the child likes spending time with you, the therapist". There are 12-items on each scale with a 4-point response format ranging from "Not like me (or my patient for therapist form)" to "Very much like me (or my patient for therapist form)".

RASC items ranged from general questions about the relationship such as "I like spending time with my reading teacher" to more specific questions about reading like "I work with my reading teacher on improving my reading skill". Teacher RASC items also cover a

range of student and teacher attributes that influence the relationship and the child's reading such as "The student works with you on solving his/her reading difficulties". The internal reliability coefficient of the TASC scales range from .67-.74 for the child scale and from .72-.88 for the therapist scale (Shirk & Saiz, 1992).

## **Results**

### **Research Question 1**

- a. Are the Reading Alliance Scale for Children (RASC) and Teachers (RAST) reliable measures of the working alliance between teachers and students?**

Reliability, as estimated by internal consistency for the Reading Alliance Scale for Children (RASC) and for Teachers (RAST), indicate that the scales consistently measure the working alliance relationship between students and teachers. The reliability of the individual scale items also seems relatively reasonable across time. Internal consistency reliability of the items in the RASC after 70 hours of reading instruction was very high with a Cronbach's alpha of .86 for all the 12 items, indicating strong reliability among the scale items. Item total correlations were reported at the acceptable range of above .3 (Kline, 2000), except for Question 2 ("I find it hard to work with my reading teacher on improving my reading") with a low item total correlation of .23. The item was not deleted because deleting the item did not substantially improve the overall internal consistency of the test. At post 125 RASC items maintained high internal consistency (Cronbach's alpha = .88) and high item total correlations ranging between .33-.73.

The internal consistency of the 12-item RAST reported by teachers at post 70 also showed a relatively high Cronbach's alpha of .94 with item correlations ranging between .53 and .81. This scale also reported a relatively high mean score (3.6) on Question 9 ("The student finds it hard to work with you on solving his/her reading difficulties"). The high item mean (along with a truncated SD) made it a candidate for deletion, due to the lack of variability in the item. This item was also not deleted due to the high Cronbach's alpha reported for all the items. The observed internal consistency reported by the 12-item RAST at post 125 also yielded high Cronbach's alpha of .95 with extremely high item total correlations ranging between .70 and .84. The high internal consistency estimates obtained for teacher ratings demonstrate that teachers relative to students showed less variability across the items of the scale in their reports on the relationship. Table 2 contains the internal consistency, item-total correlation ranges and descriptive statistics for the 12 item scales for children and teachers at pre test and post test.

Table 2

*Internal consistency (Cronbach alpha Coefficient) for RASC and RAST items*

Scale	N	Cronbach Alpha	No. of items	Item-total correlations	Mean	SD
Pre test Reading Alliance Scale for Children	253	.86	12	.23 - .67	37.15	7.00
Post test Reading Alliance Scale for Children	142	.88	12	.33 - .73	38.26	7.11
Pre test Reading Alliance Scale for Teacher	145	.94	12	.53 - .81	38.63	7.71
Post test Reading Alliance Scale for Teacher	67	.95	12	.70-.84	40.18	8.08

**b. What is the relationship between the working alliance scale and child's age, gender, and ethnicity?**

Correlational analysis, *t* tests and One Way ANOVA tests were employed to test the relationships between the Reading Alliance Scale and students demographic variables.

*Relationship between working alliance and child's age*

A bivariate correlation was conducted to test the hypothesis that there would be a significant relationship between working alliance and child's age. Results showed a significant correlation between child's age and RASC at post 70 ( $r = -.25, < p = .01$ ) and RAST at post 70 ( $r = -.19, < p = .05$ ). This indicates that after 70 hours of reading instruction younger children reported positive scores on the working alliance scale for their teacher while teachers also reported positive working alliance scores for younger children at post 70.

Table 3

*Correlation matrix of working alliance and child's age*

Variable	N	AGE	RASC 70	RASC 125	RAST 70	RAST 125
AGE		1	-.25**	-.08	-.19*	.06
RASC 70	254	-.25**	1	.61**	.46**	.32**
RASC 125	143	-.08	.61**	1	.26**	.57**
RAST 70	147	-.19*	.46**	.26**	1	.61**
RAST 125	67	-.06	.32**	.57**	.61**	1

Note: \*\*  $p < 0.01$ ; \*  $p < 0.05$

*Relationship between working alliance and gender*

A *t* test was conducted to test whether there was a significant difference between male and female students on their rating of the relationship at 70 hours of instruction ( $t = .02, < p = .05$ ). Results showed that after 70 hours of instruction, female students ( $M = 3.24, SD = .57$ )

reported higher scores on working alliance with their teacher than male students ( $M = 3.04$ ,  $SD = .60$ ). Results also showed a significant difference between gender and RAST 70 ( $t = .01$ ,  $p = .05$ ). Thus, teachers reported higher scores for female students ( $M = 3.36$ ,  $SD = .62$ ) than for male students ( $M = 3.07$ ,  $SD = .67$ ).

#### *Relationship between working alliance and ethnicity*

To investigate the difference between working alliance scores and child's ethnicity a One-Way ANOVA was conducted. Overall, there was a significant main effect of ethnicity for teacher's reports of working alliance at post 70,  $F(3, 146) = 2.8$ ,  $p = .05$ . Follow up Post hoc tests showed that teachers reported higher scores on working alliance for Hispanic students ( $M = 3.48$ ,  $SD = 0.57$ ) compared to Black students ( $M = 3.06$ ,  $SD = 0.74$ ). Compared to all other students Black students were rated lower on working alliance at post 70 by their teacher. This effect was however not statistically significant.

#### **c. Is there a relationship between teacher and student ratings on the Reading Alliance Scale for Children (RASC)?**

Correlational analyses were conducted to assess the relationship between teacher and student ratings on the RASC at both time points. Results showed a significant correlation among the two scales at two time points. Student ratings at pre test were significantly correlated with student post test ratings ( $r = .61$ ,  $p < 0.01$ ), pre test teacher ratings ( $r = .47$ ,  $p < 0.01$ ), and post test teacher rating ( $r = .32$ ,  $p < 0.01$ ). This implies significant test-retest reliability for the RASC and RAST and a significant rater agreement across the RASC and RAST. The lowest correlation was observed between teachers' ratings after 70 hours of instruction and student's post-intervention

ratings, indicating that the relationship as rated by the teacher early in the intervention only had a weak relationship with the students' final rating of the relationship.

Table 4

*Correlations between student and teacher ratings on the Working Alliance*

Variable	Student RASC 70	Student RASC 125	Teacher RASC 70	Teacher RASC 125
Student RASC 70	1	0.61**	0.47**	0.32**
Student RASC 125	0.61**	1	0.27**	0.57**
Teacher RASC 70	0.47**	0.27**	1	0.61**
Teacher RASC 125	0.32**	0.57**	0.61**	1

Note: \*\*  $p < 0.01$

## Research Question 2

### Is there a relationship between working alliance and reading outcomes?

Correlational analyses were employed to investigate the relationship between working alliance and reading, reading subskills, cognitive and language abilities for students at the two time points. Correlations showed a significant positive relationship between student's working alliance ratings after 70 hours of instruction and pre test Verbal IQ scores ( $r = .15, p < .05$ ), indicating that students who reported a positive working alliance with their teacher were students who had a previously high verbal IQ. Correlations also showed a significant negative relationship between students' reports on the working alliance after 70 hours of instruction and students' raw scores on the Phoneme Reversal subtest of the CTTOP ( $r = -.12, p < .05$ ).

In contrast, however, there was no significant relationship between student reports of working alliance and reading outcomes after 125 hours of reading instruction.

Teachers reports of working alliance after 70 hours of instruction showed significant positive correlation ( $r = .17, p < .05$ ) with raw scores on students' pre test Word Attack. Teacher

reports were also correlated with both raw ( $r = .17, p < .05$ ) and standardized ( $r = .20, p < .05$ ) student scores on the Word Attack at mid point testing. Thus, students who obtained high working alliance reports from their teacher after 70 hours of instruction were students who showed high pre test and midpoint Word Attack skills. Teacher reports on the working alliance were also positively correlated with pre test ( $r = .21, p < .05$ ) and midpoint ( $r = .17, p < .05$ ) standardized scores of student Passage Comprehension subtest. Thus, students with high passage comprehension abilities at pre test and midpoint testing also obtained positive teacher ratings on the working alliance. Teachers reports of working alliance were positively correlated with students' standardized pre test scores on the Phoneme Reversal sub test ( $r = .16, p < .05$ ). Overall teacher reports after 70 hours of instruction were more likely to be positive for students who had previously high pre test and midpoint reading scores.

After 125 hours of reading instruction, teacher reports on the working alliance were positively correlated with students' standardized pre test scores on the Phoneme Reversal sub test ( $r = .24, p < .05$ ), and the Passage Comprehension sub test ( $r = .26, p < .05$ ). Most importantly teachers' reports after 125 hours of instruction were positively correlated with both raw ( $r = .36, p < .05$ ) and standardized ( $r = .39, p < .05$ ) scores of students post test Passage Comprehension scores. Thus, students who were rated high on the working alliance by their teacher after 125 hours of instruction made positive gains in Passage Comprehension at post test.

### **Research Question 3**

#### **Is there a relationship between working alliance and motivation?**

Bivariate correlations were conducted to test the hypothesis that working alliance would be significantly related to motivation. Results showed a significant positive correlation between

students' report of working alliance and students' post test Competence scores ( $r = .31, p < 0.01$ ) after 70 hours of instruction. Results also showed significant correlation between student working alliance reports and students post test Effort scores ( $r = .26, p < 0.05$ ) after 70 hours of instruction. After 125 hours of instruction working alliance was significantly positively with all three motivational subscales at post test: Competence ( $r = .28, p < 0.01$ ), Effort ( $r = .33, p < 0.01$ ), and Interest ( $r = .25, p < 0.05$ ). Thus, after 125 hours of reading instruction students who reported a positive working alliance with their teacher also reported a high motivation for reading.

Table 5

*Correlations between student working alliance reports and motivation*

Variable	N	Posttest Sense of Competence	Posttest Effort	Post test Interest
Student RASC 70	94	.131**	.260**	.197
Student RASC 125	87	.275**	.332**	.253*
Teacher RASC 70	42	.090	0.44	-.028
Teacher RASC 125	26	.254	.259	.205

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$

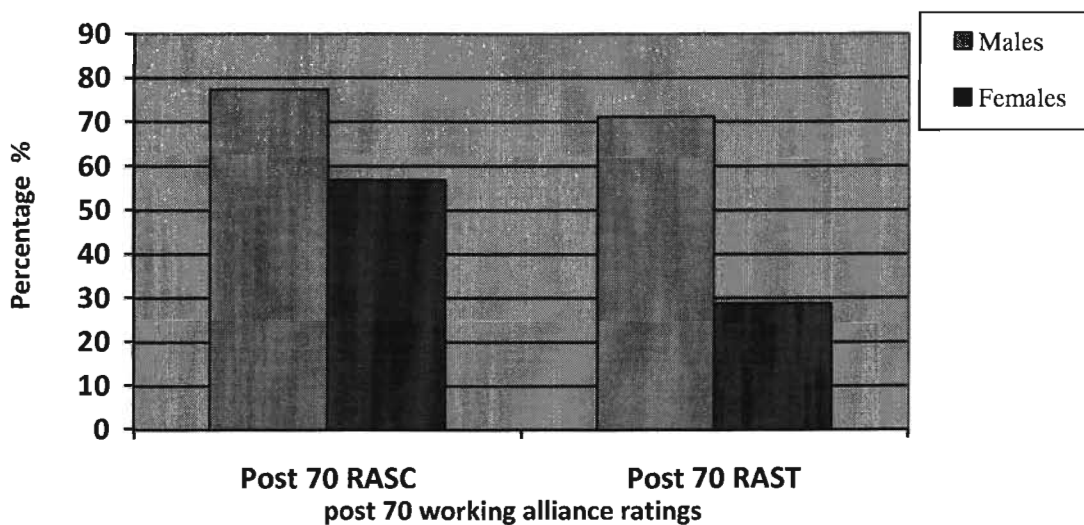
**Research question 4**

**What are the characteristics of students who were rated low by their teacher on the working alliance?**

To determine students who were rated low by their teacher, a new variable was coded for students who received low scores in each instructional group. The student that each teacher rated as having the weakest working alliance within each instructional group was coded 0 and all others were coded 1. Results indicated that among students who were rated poorly by their



teacher ( $N = 31$ ), 24 (77.4%) were male while 7 (56.9%) were female. Chi-square analysis were significant ( $X^2(1, N = 147) = 4.34, p < .05$ ) showing that teachers were significantly more likely to rate their relationship with male students at post 70 lower compared to females. A further look at student ratings of the relationship with their teacher at post 70 showed that male students were significantly more likely to rate their relationship with their teachers as low ( $X^2(1, N = 252) = 2.16, p < .05$ ). Of the 73 students who rated their teacher at post 70 low 52 (71.2%) were males and only 21 (28.8%) were females. Thus male students who were likely to be rated poorly by their teacher on the relationship were also very likely to rate their teacher poorly on the relationship at post 70. The percentages of male and female students who were rated low by their teacher are presented in Figure 1.



*Figure 1.* Percentage of low working alliance rating at post 70

A Chi-square analysis was conducted to test the differences between child's grade, ethnicity and child's age at pre test. In contrast, no significant results were found for these at post 70. Results also showed no significant differences for pre test and post test reading and motivation scores.

### **Research question 5**

**What are the basic predictors of the student and teacher reports of working alliance with their teacher at the initial phase of remediation?**

To examine which variables predict teacher reports of working alliance a hierarchical linear regression analysis was conducted with student post 70 RASC scores as the dependent variable. The following independent variables were entered in three steps: student age, gender and race category in the first step, pre test language and cognitive abilities (RAN numbers, RAN letters, CTOPP Phonemic Reversal, CTOPP Blending Words, WASI performance and WASI verbal) in the second step, and teacher post 70 RAST scores in the last step. The first step enters constitutional characteristics of the student, the second enters cognitive and language factors that would be influenced by educational experiences and the broader environment, and finally the last step is the immediate context, being the relationship with the teacher. Entering this last indicates that the relationship from the teachers' perspective predicts the relationship from the students' perspective, even controlling for the variables in step 1 and 2.

The contribution of age, gender and race together was significant,  $R^2 = .112$ , adjusted  $R^2 = .086$ ,  $p < .002$ . Child's age was a significant predictor of early reports of the working alliance ( $\beta = -.230$ ,  $p < .006$ ), indicating that teachers reported a positive working alliance for younger children. Gender was also significant ( $\beta = .150$ ,  $p < .015$ ), indicating that child's gender was predictive of early working alliance ratings in the early phase of the relationship. To determine if students' race predicted reports of working alliance a new variable was created comparing Caucasian students to all other students (Race 1) and comparing Black students to all other students (Race 2). Teachers tended to report a positive early working alliance with Caucasian

students ( $\beta = .004, p < .960$ ) compared to Black students ( $\beta = -.627, p < .535$ ). In the second step, the contribution of pre test language and cognitive ability was not significant,  $R^2 = .142$ , adjusted  $R^2 = .076, p < .613$ . The overall model was significant,  $R^2 = .345$ , adjusted  $R^2 = .290, p < .000$ , explaining 34.5% of the variance accounted for by these variables. The results show that students' report of the working alliance at the beginning of the treatment is explained by teacher reports above and beyond student age, gender, race, and language and cognitive abilities. These results also indicate that the working alliance reported has nothing to do with students' cognitive and language abilities.

Table 6

*Standardized regression coefficients for student age, gender, ethnicity, language and cognitive abilities, as possible predictors of teacher post 70 RAST scores (N = 142).*

Predictor	Step 1	Step 2	Step 3
	Student post 70 RASC		
Age	-.230 (.006)		
Gender	.202 (.015)		
Race 1	.004 (.960)		
Race 2	-.627 (.532)		
Pretest RAN numbers		-.164 (.353)	
Pretest RAN letters		.201 (.222)	
CTOPP Phoneme Reversal SS		.028 (.773)	
CTOPP Blending SS		.052 (.575)	
WASI: Performance IQ		.035 (.718)	
WASI: Verbal IQ		.080 (.403)	
Teacher post 70 RAST			.496 (.000)
Model $R^2$	.112	.142	.345
$\Delta R^2$	.112	.029	.203

Note:

1. Race 1= Caucasian students against all other students. Race 2= Black and all other students
2. p values in parenthesis

Next, to examine which variables predict student perception of working alliance at the beginning of treatment, a hierarchical linear regression analysis was conducted with teacher post 70 RAST scores as the dependent variable. The following independent variables were entered in three steps: student's age, gender and race category in the first step, pre test language and cognitive abilities (RAN numbers, RAN letters, CTOPP Phonemic Reversal, CTOPP Blending Words, WASI performance and WASI verbal) in the second step, and student post 70 RASC scores in the last step. The first step enters constitutional characteristics of the student, the second enters cognitive and language factors that would be influenced by educational experiences and the broader environment, and finally the last step is the immediate context, being the relationship with the teacher. Entering this last indicates that the relationship from the student's perspective predicts the relationship from the teacher's perspective, even controlling for the variables in step 1 and 2.

The contribution of student age, gender and race was significant,  $R^2 = .129$ , adjusted  $R^2 = .103$ ,  $p < .000$ . Child's age predicted early reports of the working alliance ( $\beta = -.145$ ,  $p < .078$ ), indicating that younger children were more likely to report positive working alliances with their reading teacher in the early phase of the relationship. This finding was however not significant. Gender was significant ( $\beta = .204$ ,  $p < .013$ ), indicating that a child's gender was predictive of early working alliance ratings in the early phase of the relationship. To determine if students' race predicted teachers' early reports of working alliance a new variable was created comparing Caucasian students to all other students (Race 1) and comparing Black students to all other students (Race 2). Compared to all other students Caucasian students tended to report a poor early working alliance with their teacher ( $\beta = .013$ ,  $p < .876$ ) while Black students reported a positive early working alliance with their teacher ( $\beta = .252$ ,  $p < .003$ ). The contribution of

students pre test language and cognitive ability in the second step was not significant,  $R^2 = .172$ , adjusted  $R^2 = .109$ ,  $p < .333$ . The overall model was however significant,  $R^2 = .368$ , adjusted  $R^2 = .315$ ,  $p < .000$  with the predicted variables accounting for 36.8% of the variance. Thus student reports explain teacher reports of the working alliance over and beyond students' characteristics, and their language and cognitive abilities.

Table 7

*Standardized regression coefficients for student age, gender, ethnicity, language and cognitive abilities, as possible predictors of teacher post 70 RAST scores (N = 142).*

Predictor	Step 1	Step 2	Step 3
	Teacher post 70 RAST		
Age	-.145 (.078)		
Gender	.204 (.013)		
Race 1	-.013 (.876)		
Race 2	.252 (.003)		
Pretest RAN numbers		.088 (.611)	
Pretest RAN letters		-.128(.467)	
CTOPP Phoneme Reversal SS		.133 (.166)	
CTOPP Blending SS		-.113 (.216)	
WASI: Performance IQ		-.048 (.615)	
WASI: Verbal IQ		.086 (.360)	
Student post 70 RASC			.478 (.000)
Model $R^2$	.129	.172	.368
$\Delta R^2$	.129	.044	.196

Note:

1. Race 1= Caucasian students against all other students. Race 2= Black and all other students
2. p values in parenthesis

## Discussion

The present study examined the relationship between teacher-student working alliance and treatment outcomes in a reading program for older reading disabled children. Overall, findings showed that early reports of the working alliance between students and teachers were

predicted by students' age, gender and ethnicity, but not students' prior language and cognitive abilities. High internal consistency reliability estimates were reported for the Reading Alliance Scale for Children (RASC) and Teachers (RAST) indicating the consistency of the scales in measuring working alliance. Intercorrelations between the working alliance scales were also evident, a finding consistent with past research (Horvath & Symonds, 1991; Shirk & Saiz, 1992). Most importantly, consistent with past research with child and adolescent samples the study showed a moderate relationship between working alliance and motivation for reading (Shirk & Karver, 2003). Furthermore, teacher reports tended to predict outcome more than student reports of the working alliance (Shirk & Karver, 2003). The results have implications for research on teacher-student relationships in teaching and learning settings, as well as applied research on intervention studies among reading disabled children. Furthermore the study has implications for policy efforts in remediation among older reading disabled children.

The current study addressed the following research questions.

The first research question examined the psychometric properties of the Reading Alliance scale, its relationship with participant demographic variables and correlations between the two scales as rated by teachers and students. The high reliability estimates and Cronbach's Alphas reported for the scales showed a consistent finding with past research on working alliance scales (Shirk & Saiz, 1992; Horvath and Symonds, 1991). Teacher scales showed the highest reliabilities, a finding which is consistent with past research with child and adolescent samples (Shirk & Saiz, 1992) as well as adult samples (Horvath & Symonds, 1991). Teachers showed less variability in their report of the working alliance compared to students. This finding shows that while teachers tend to view the working alliance as stable students on the other hand viewed it as changing to reflect the dynamics at the different phases of treatment. The implication of this

finding is however mixed because while Shirk and Karver (2003) found less variability in child and adolescent reports compared to therapist reports the current study found less variability in teacher reports instead. Nevertheless, both studies showed therapist/teacher reports as more predictive of outcome than student reports. A possible explanation may be that teachers tended to report a positive bias toward their students and hence maintained consistency in their reports. This finding appears compelling within teaching and learning settings considering the impact of teacher perceptions and expectations on student performance (Hamre & Pianta, 2001).

The next section of the research question examined the relationship between the working alliance and demographic characteristics. As predicted by the hypothesis, results showed a significant difference between male and female student reports of the working alliance relationship with their teacher. Male students were more likely to report an initially low working alliance with their teacher while female students reported an initially high working alliance with their teacher. This finding is consistent with past research by Eltz et al (1995) who found gender differences in their study with maltreated adolescents. In their study the authors identified that male participants showed more interpersonal problems than female participants at the beginning of treatment thus influencing their ability to form positive alliances. Within the context of reading however, these results are consistent with studies which identify girls to have higher competence beliefs and more positive attitudes about reading compared to boys (Wigfield, Eccles, Yoon, Harold, Arbretton, Freedman-Doan & Blumenfeld, 1997; Baker & Wigfield, 1999). Perhaps, this sense of competence and positive attitude about reading is associated with female students' ability to collaborate with their teacher on reading tasks.

Teachers also reported high working alliances for female participants than for males after 70 hours of reading instruction. It is possible that male students and teachers did not have a

positive rapport at the beginning of the program. More importantly, it is possible that the positive working alliance reported between female students and teachers has to do with similarity. Luborsky, Crits-Christoph, Alexander, Margolis, Cohen (1983) found that similarities between patient and therapist had a potential influence on the formation of an early working alliance during treatment. Although the impact of gender was not considered by the authors it is possible that a gender similarity would have an influence. Most of the reading teachers were female, a factor that may influence initial perceptions and reports. It is possible that having a female reading teacher tended to influence female students' positive reports as noted by studies on classroom dynamics (e.g. Dee, 2007). At the end of the program, however, no significant differences were found between male and female students in their reports of the working alliance. Perhaps gender differences were apparent at the beginning of the reading program due to the novelty of the reading program. It is possible that prior classroom notions about teacher-student relationship influenced reports of the working alliance. Further caution should be used in explaining this finding considering the limited number of studies on child and adolescent samples and within this specific area of reading disability. Although studies point out the possible influence of patient and therapist personal characteristics on reports of initial working alliance very few have studied the impact of gender (Martin et al. 2000). It will be beneficial for future studies on the working alliance relationship especially among child and adolescent participants to look into this dynamic.

Results showed a significant correlation between working alliance and age indicating that younger children reported a positive working alliance with their teacher early on in the treatment. Teachers also reported positive working alliance scores for younger children at post 70. This is consistent with findings by Shirk and Karver (2003) who reported high means for child



participants compared to adolescent participants although the finding was not statistically significant. This finding is not surprising considering past research that shows that child and adolescent participants tend to lack the social cognitive skills to accurately rate the working alliance (Shirk & Karver, 2003). It is possible that younger children tended to easily perceive an affective relationship or attachment to their reading teacher than older children did. It could also suggest that younger children tended to be positively biased in their evaluations of the teacher as indicated by Shirk and Karver (2003).

Overall, the positive relationship between working alliance and the child's ethnicity obtained in this study presents a major contrast with working alliance literature on adult samples (Taft et al, 2004; Hersoug, Høglend, Monsen & Havik, 2001) which identified that the patient's ethnicity does not have an impact on the working alliance formed. In this study, however, teachers tended to report a low working alliance with their Black students compared to other students. Teacher reports at post 70 showed significant differences between Black and Hispanic students. Considering the nature of missing data in the sample this finding may not generalize well to the full sample. It is possible that there were more Black students than Hispanic students leading to the significant results obtained. Also, it is important to consider that the student-teacher ratio for Black students in this study could provide a possible explanation for this finding. There is research evidence to suggest an association between teacher-student ethnic match and positive teacher-student relationship in the classroom (Saft & Pianta, 2001). Future research on teacher-student relationship within teaching and learning settings should consider possible differences in teacher-student relationship based on ethnic match.

Taken together the results are consistent with past research on client-therapist characteristics and the formation of early working alliance (Luborsky, et al. 1983; Horvath &

Luborsky, 1993). It is clear that therapist characteristics also influence the development of the working alliance early in treatment. This is consistent with a study by Dunkle and Friedlander (1996) which identified therapist factors as contributing to the working alliance relationship. Specifically, “clients whose therapist reported less hostility, more social support, and greater comfort with closeness are more likely to report a strong emotional bond early in treatment” (Dunkle & Friedlander, 1996, p. 459). Thus, when children perceive an affective bond with their therapist, they are more likely to report an early positive alliance (Shirk & Saiz, 1992). These findings provide evidence to show that early working alliance is critical in research with child and adolescent participants.

The second research question addressed the relationship between the working alliance and student reading ability scores. Overall, findings showed teacher reports to be more predictive of reading ability compared to student reports (Shirk & Karver, 2003). Students who obtained high working alliance reports from their teacher after 70 hours of instruction showed high pre test and midpoint Word Attack skills. Put another way, this finding suggests that students who showed initial high Word Attack skills were students who obtained positive teacher ratings on the working alliance. It is possible that teachers found it much easier to work with students who achieved a previously high reading score compared to other students. It could also suggest that students who had high Word Attack skills were more confident in their reading ability and thus tended to have positive expectations about the reading program and thus were more likely to collaborate with reading tasks. This finding is consistent with previous research in psychotherapy research that showed that adolescents with positive expectations for treatment formed more positive working alliance relationships with their therapist (Eltz et al., 1995). Teachers’ reports of the working alliance after 125 hours of instruction were significantly correlated to students’

positive post test gains in Passage Comprehension. This finding implies that students who were rated by their teacher as having a positive working alliance also obtained significant gains in their passage comprehension. It is possible that the students who reported higher reading ability scores at the end of remediation were students who had positive expectations for the reading intervention. Thus they were more likely to collaborate with reading tasks.

Overall, the finding remains consistent with findings from research on child and adolescent participants which maintains that teacher reports were more predictive of outcome. The correlations between working alliance and reading outcomes that were statistically significant were frequently small in magnitude and only applicable to few of the reading measures. Although a potential relationship was established between working alliance and some reading ability measures in this study it is important to exercise caution in interpreting these results. It should be noted that the children used in the study were severely reading disabled. Thus they may not show similar reading outcomes as children with typical reading ability. Thus there may have been a positive working alliance reported but this may not lead to an overall positive reading achievement as predicted within studies in psychotherapy. Within teaching and learning settings we cannot ignore contributing factors such as “level of difficulty and method of delivery” (Rogers, 2009, p. 6), as well as teacher style, teacher-student dynamic, among other pre-existing sample characteristics and interpersonal competencies (Lyon & Moats, 1997). Furthermore, the claim within psychotherapy studies that the alliance formed is more important than the treatment type (Martin et al., 2000) may not hold within teaching and learning settings due to a variety of contextual differences within the field. Thus in applying the theory of working alliance in teaching and learning settings research should take into consideration the type of intervention as well as differences in the sample.

The third research question addressed whether there was a significant relationship between working alliance and motivation. Correlations between working alliance and motivation after 70 hours of instruction showed a significant positive effect for students' post test Competence and Effort scales. Working alliance after 125 hours of instruction was correlated to students' post test Competence, Effort and Interest scale scores. These results provide support to the working alliance literature emphasizing a patient's goals and values as a contributor to working alliance formation. Despite the lack of substantive research on the relationship between working alliance and motivation this finding is not surprising. A possible explanation for this finding could be that students were motivated by the mutual bond developed with their teacher during the intervention. As indicated by motivation researchers, such as Ryan and Deci (2000), motivation is effective in the presence of a significant other and reading teachers in this sample tend to hold that significant role for children in this context. This is also consistent with the notion of learning in the zone of proximal development (ZPD). The ZPD is defined as the distance between a child's actual developmental level and the level of potential development as determined through problem solving under the guidance of an adult or in collaboration with more capable peers (Rogoff, 1998). Interactions in the zone of proximal development enable the less competent children to actively participate in reading activities with their reading teacher to improve their reading. The working alliance relationship developed in the context of this study is most likely to influence students' competence beliefs and effort. In addition, interest in the reading activity tends to increase over the period of intervention due to frequent reading engagement. Baker and Wigfield (1999) noted that children with more positive attitudes for reading engagement are more motivated to read. Thus when students perceive a positive relationship with their teacher they tend to exert considerable effort in reading tasks. It is also

possible to speculate that the continuous exposure to the reading situation tends to motivate students to progress effectively as they make significant progress.

The fourth research question examined the characteristics of students who were rated by their teacher as having the weakest working alliance within the instructional group. Results showed that teachers were more likely to rate male students the weakest on the working alliance. This finding is consistent with research by Eltz et al. (1995) who found that male students were rated low on the working alliance compared to female students. It is possible that teachers tended to perceive a negative rapport with male students at the beginning of the program. Eltz et al. (1995) maintained that male students are likely to show more interpersonal problems than female students, and hence may be less likely to develop a positive working alliance. Another possible reason for this finding lies within research in classroom relationships (Jones & Dindia, 2004; Goodenow, 1993). Research on classroom relationships has consistently noted that male students compared to female students are more likely to receive negative evaluations from their teacher (Jones & Dindia, 2004). Teacher expectations and perceptions for student achievement underlie their evaluation of the working alliance with their students.

The fifth research question addressed the possible predictors of student and teacher reports of working alliance in the early phase of the reading program. Significant results were obtained when age, gender and ethnicity were entered in the model. Results showed that students' age, gender, ethnicity tends to predict both student and teacher reports of the working alliance at the early phase of the reading program. This finding is in agreement with Horvath (1994) who claimed that client factors were predictive of early working alliance reports. In contrast to work by Horvath (1994), early reports of working alliance did not predict outcome in this study. It is possible that early working alliance that is characterized by client characteristics

is likely to be influenced by general likeness to the person which may not be substantial to predict outcome (Bordin, 1980). This implies that client factors that enhance the formation of the working alliance such as social cognitions (Shirk & Siaz, 1992), early experiences and expectations for the treatment, and current social support (Horvath, 1994) may be more predictive of outcome than physical characteristics. In future research, a consideration of these factors is necessary. Most importantly, the regression model suggests that students' language and cognitive abilities did not predict the working alliance reported by students and teachers. Put another way, this finding implies that students' prior language and cognitive ability do not uniquely contribute to the working alliance reported by students and teachers.

### **Strengths and limitations**

The current study addressed critical issues in the working alliance literature, particularly the application of the theory in teaching and learning context among child and adolescent participants. Findings from the study have both supported and contrasted previous findings in the overall working alliance literature and raised concerns about the potential application of the theory among reading disabled children.

Overall, the study had a number of strengths. First, the study addresses a very important gap in the literature in the application of the working alliance in educational settings by the development of a Reading Alliance Scale for Children (RASC) and Teachers (RAST). The high internal consistency reliabilities reported make them useful tools for future research. Second, and perhaps more importantly, the current study adds to the literature on remediation for older reading disabled children. Third, as remediation studies have noted the need for further research on the context of remediation (Lyon & Moats, 1997), the application of the working alliance theory within the context of remediation provides direction towards aspects of the remediation

context that may be useful for effective remediation of reading disability. Another strength of the study lies in the use of culturally diverse sample. Students were from two culturally diverse locations (Atlanta and Toronto) that make it possible to generalize to culturally diverse populations. Although previous studies on working alliance have not found cultural differences among participants, it is worth noting that client and therapist similarities may influence the formation of an early working alliance (Luborsky et al., 1983).

Notwithstanding its strengths, the study presents a number of limitations that are worth noting. The first limitation has to do with the use of a specific sample of older reading disabled children. The general consensus among reading researchers regarding older reading disabled children lies in their inability to benefit from reading interventions (Alexander & Slinger-Constant, 2004; Torgesen, 2005). It is possible that older reading disabled children have a developmental challenge that makes it difficult for them to effectively make gains from the working alliance relationship with their reading teacher. A related limitation also has to do with interpretation of results. Findings from this study can only be generalized to studies involving older reading disabled children. An examination of working alliance among children with typical reading ability may provide a channel for future researchers to shed more light on the application of the working alliance in teaching and learning contexts.

Secondly, the study failed to collect demographic data on teacher participants. Considering that teacher reports were more predictive of outcome than student reports it is imperative to access teacher information. Although studies have identified patient reports as more predictive than therapist reports (Horvath & Symonds, 1991), studies on child and adolescent participants, including the current study, have indicated otherwise (Shirk & Karver, 2003). The current study was not able to examine potential teacher factors that may have

influenced this finding. Future research should investigate factors that influence alliance formation within educational settings among child and adolescent participants and their teachers. It is possible that teacher characteristics, teaching style, and their expectations for a child's success may be important to the study of alliance formation within educational settings. It is also important to consider factors that are specific to teaching and learning such as developmental level of the child, motivation, socioeconomic status and parental level of education, teacher expertise, among others.

A third limitation has to do with the unequal teacher-student match in this study. It is possible that gender differences obtained in the results may be due to the unequal ratio of teacher to students in the sample. According to Dee (2007) students are more likely to identify with same sex teachers than opposite sex teachers. He pointed out that teacher-student gender match was an important determinant of overall student educational outcomes. In a study on the relationship between gender gaps and student outcomes, Dee (2007) found that test scores of male students were significantly reduced when assigned to a female teacher. It is possible that having male reading teachers may impact findings in the current study greatly. It is valuable for future research to address this gap in order to accurately address the gender dynamic.

The fourth limitation of the study has to do with the correlational nature of the study which prevents us from making causal conclusions about findings. Even though working alliance is related to students' reading ability and motivation, it cannot be concluded that an increase in reading ability and motivation is attributed to the working alliance between students and teachers. Experimental and longitudinal studies will be more useful for drawing causal relationships between working alliance and reading and motivation outcomes.



The fifth limitation of this study has to do with the missing data patterns in the sample that draws limitations around most of the important findings in the study. The shifting manner of sample sizes per analysis takes away from making generalizations about the findings. Future research should take into consideration how the different sample sizes may impact findings and how these may be curtailed.

### **Implications and directions for future research**

The current study investigated the relationship between working alliance and reading among a sample of older reading disabled children. More importantly, the study was aimed at bridging a gap in the literature through the application of the theory of working alliance in teaching and learning contexts. Past research suggests that a strong working alliance is related to positive treatment outcomes (Horvath & Symonds, 1991; Shirk & Karver, 2003). Furthermore, within educational settings researchers (e.g., Rogers, 2009) have indicated a possible relationship between strength of the alliance and outcomes. As the theory remains applicable in change situations it is crucial to explore the potential for the application of the concept in educational settings. The results of this study present important implications for research on remediation and intervention studies.

First, bearing in mind the dynamic of teacher-student relationship in teaching and learning settings future research within similar contexts is needed to investigate the influence of teacher characteristics on the working alliance formed. Likewise, future research should consider student characteristics that may have a possible influence on the formation of the alliance early in treatment. Past researchers have acknowledged the potential influence of patient and therapist characteristics on early alliance formation (e.g., Luborsky, et al. 1983). Other studies have also

highlighted the potential strength of an early alliance on the overall quality of the working alliance relationship (Horvath, 1994), making the early alliance very crucial.

In addition, future research in the application of the working alliance in teaching and learning contexts should explore the contribution of teacher reports. The present study was not able to address this finding due to the limited data on teachers. Although studies in adult psychotherapy literature have showed that patient reports are more predictive of outcome than therapist reports, studies with child and adolescent samples have shown otherwise. Considering the dynamic between teachers and students in educational settings it is imperative to explore the possibility that teacher skills and characteristics may influence student reports of the alliance. Reading intervention researchers have identified the potential influence of teacher skills, style and fidelity on the intervention outcomes (Lyon & Moats, 1997). In this study, teacher characteristics appear to influence students' reports but it is not specified which specific teacher characteristics stood out.

Also, future research on the working alliance in educational settings should take into consideration the different aspects of the teaching and learning environment that may benefit from the working alliance relationship. A positive working alliance between teacher and student may lead to positive outcomes in students' overall academic achievement and motivation, as well as encourage positive behaviours in the classroom. Research on teacher-student classroom relationships has identified that positive teacher-student relationships are more predictive of behavioural than academic outcomes (Hamre & Pianta, 2001). Reading researchers have noted that older children with reading disability tend to engage very little in reading activities. Thus it may be important to have a positive teacher-student relationship which could be an asset in encouraging effective reading engagement behaviours among reading disabled children.

The implications of this study's results also hold prospects for policy efforts to promote effective reading instruction for reading disabled children. Reading researchers have noted the challenges of remediation for older children with reading disability. Most importantly, several complex methodological and contextual issues have been identified as possible confounds to the effectiveness of intervention studies (Lyon & Moats, 1997). It is worthwhile for intervention studies to take account of the external context on the intervention as students tend to spend only part of their day in the reading program. In future research, it may be useful to consider how other relationships such as peer, sibling and parental relationships that may influence the working alliance relationship in the context of a reading intervention.

### **Conclusion**

The current study investigated the theory of working alliance and its application in a reading program for older reading disabled children. Findings showed that the Reading Alliance Scale for children and teachers was an effective measure of the working alliance between students and their teacher. Consistent with research on child and adolescent samples, teacher reports were more predictive of outcome than student ratings on the working alliance. Most importantly positive working alliance was related to students' reading and motivation at the end of the treatment.

Findings from the study add to knowledge of the variables that contribute to working alliance between students and their teachers. The study also highlights possible application of the theory to a number of different settings. It however points to the need for continuous research in this area. The working alliance theory will remain a useful tool for researchers in a variety of educational settings. It is very important that research on its application in teaching and learning

contexts contribute to educational strategies and practices to enhance the overall academic achievement of students.

In sum, the findings from this study contribute to the increased understanding of the application of the theory of working alliance among child and adolescent samples, as well as the relationship between working alliance, reading, and motivation among older reading disabled children. Additionally, the theory may be applicable to other aspects of teaching and learning in the classroom beneficial to overall student development.

## References

- Alexander, A., & Slinger-Constant, A. (2004). Current status of treatments for dyslexia: Critical review. *Journal of Child Neurology*, 19, 744 - 758.
- Baker, L., & Wigfield, A. (1999). Dimensions of children's motivation for reading and their relations to reading activity and reading achievement. *Reading Research Quarterly*, 34, 452 - 477
- Barish, K. (2004). What is therapeutic in child therapy? I. Therapeutic engagement. *Psychoanalytic Psychology*, 21, 385 - 401.
- Blachman, B. A., Schatschneider, C., Fletcher, J. M., Francis, D. J., Clonan, S., Shaywitz, B., & Shaywitz, S. (2004). Effects of intensive reading remediation for second and third graders. *Journal of Educational Psychology*, 96, 444 - 461.
- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research and Practice*, 16, 252 - 260.
- Bordin, E. S. (1980). A psychodynamic view of counselling psychology. *Counselling Psychologist*, 9, 62 - 70.
- Bordin, E. S. (1994). Theory and research on the therapeutic working alliance: New directions. In A. O. Horvath & L. S. Greenberg (Eds.), *The working alliance: Theory, research, and practice* (pp. 13 - 37). New York: Wiley.

- Dee, T. S. (2007). Teachers and gender gaps in student achievement. *The Journal of Human Resources*, 42, 528 - 554.
- Digiuseppe, R., Linscott, J., & Jilton, R. (1996). Developing the therapeutic alliance in child-adolescent psychotherapy. *Applied Preventive Psychology*, 5, 85 – 100.
- Dunkle, J. H., & Friedlander, M. L. (1996). Contribution of therapist experience and personal characteristics to the working alliance. *Journal of Counselling Psychology*, 43, 456 – 460.
- Eltz, M. J., Shirk, S. R., & Sarlin, N. (1995). Alliance formation and treatment outcome among maltreated adolescents. *Child Abuse and Neglect*, 19, 419 – 431.
- Foorman, B. & Torgesen, J.K. (2001), Critical elements of classroom and small-group instruction to promote reading success in all children. *Learning Disabilities Research and Practice*, 16, 203 - 121.
- Fuertes, J.N., Mislowack, A., Bennett, J., Paul, L., Gilbert, T.C., Fontan, G., Boylan, L.S. (2007). The physician-patient working alliance. *Patient Education and Counselling*, 66, 29 – 36.
- Goodenow, C. (1993). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *Journal of Early Adolescence*, 13, 21-43.
- Greenson, R. R. (1965). The working alliance and the transference neurosis. *The Psychoanalytic Quarterly*, 34, 155 - 81.
- Hamre, B. K., & Pianta, R. C. (2001). Early Teacher–Child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development*, 72, 625 - 638.

- Henry, W., & Strupp, H. (1994). The therapeutic alliance as interpersonal process. In A. O. Horvath & L. S. Greenberg (Eds.), *The working alliance: Theory, research, and practice* (pp. 51-84). New York: Wiley.
- Hentschel, U. (2005). Therapeutic alliance: The best synthesizer of social influences on the therapeutic situation? On links to other constructs, determinants of its effectiveness and its role for research in psychotherapy in general. *Psychotherapy Research*, 15, 9 - 23.
- Hersoug, A G, Hoglend, P, Monsen, J T and Havik, O E (2001). Quality of working alliance in psychotherapy: therapist variables and patient/therapist similarity as predictors. *Journal of Psychotherapy Practice and Research* 10, 205 – 216.
- Horvath, A. O. (1994). Research on the Alliance. In A. O. Horvath & L. S. Greenberg (Eds.), *The working alliance: Theory, research, and practice* (pp. 259 - 286). New York: Wiley.
- Horvath, A. O., & Greenberg, L. S. (1989). Development and validation of the working alliance inventory. *Journal of Counselling Psychology*, 36, 223 - 233.
- Horvath, A. O., & Luborsky, L. (1993). The role of the therapeutic alliance in psychotherapy. *Journal of Consulting and Clinical Psychology*, 61, 561 - 573.
- Horvath, A. O., & Symonds, B. D. (1991). Relation between working alliance and outcome in psychotherapy: A meta-analysis. *Journal of Counselling Psychology*, 38, 139 - 149.
- Jones, S. M., & Dindia, K. (2004). A meta-analytic perspective on gender equity in the classroom. *Review of Educational Research*, 74, 443-471.

- Kazdin, A. E., Marciano, P. L., & Whitley, M. K. (2005). The therapeutic alliance in cognitive-behavioural treatment of children referred for oppositional, aggressive, and antisocial behaviour. *Journal of Consulting and Clinical Psychology, 73*, 726 - 730.
- Kline, P. (2000). *A psychometrics primer*. London: Free Association Books.
- Koch, L. (2004). The student-teaching working alliance in rehabilitation counsellor education. *Rehabilitation Education, 18*, 235 - 242.
- Lovett, M. W., Lacerenza, L., & Borden, S. L. (2000). Putting struggling readers on the PHAST track: A program to integrate phonological and strategy-based remedial reading instruction and maximize outcomes. *Journal of Learning Disabilities, 33*, 458 – 476.
- Lovett, M.W., Lacerenza, L., Borden, S.L., Frijters, J.C., Seteinbach, K.A., & DePalma, M. (2000). Components of effective remediation for developmental reading disabilities: combining phonological and strategy-based instruction to improve outcomes. *Journal of Educational Psychology, 92*, 263-283.
- Lovett, M., Barron, R., & Benson, N. (2003). Effective remediation of word identification and decoding difficulties in school-age children with reading disabilities. In H. L. Swanson, K. R. Harris, & S. Graham (Eds), *Handbook of learning disabilities* (pp. 273 - 293). New York. Guilford Press.
- Luborsky, L., Crits-Christoph, P., Alexander, L., Margolis, M., & Cohen, M. (1983). Two helping alliance methods for predicting outcomes of psychotherapy: A counting signs vs. a global rating method. *Journal of Nervous and Mental Disease, 171*, 480 - 490.



- Lyon, G. R., & Moats, L.C. (1997). Critical conceptual and methodological considerations in reading intervention research. *Journal of Learning Disabilities*, 30, 578 - 588.
- Martin, D. J., Garske, J. P., & Davis, K. M. (2000). Relation of the therapeutic alliance with outcome and other variables: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, 68, 438 - 450.
- Moats, L. (1994). Knowledge about the structure of language: The missing foundation in teacher education. *Annals of Dyslexia*, 44, 81-102.
- Pennington, B. F., (2006). From single to multiple deficit models of developmental disorders. *Cognition*, 101, 385 – 413
- Pianta, R. C., Steinberg, M. S., & Rollins, L. B. (1995). The first two years of school: Teacher-child relationships and deflections in children's classroom adjustment. *Development and Psychopathology*, 7, 295 – 312.
- Rashotte, C.A., MacPhee, K., & Torgesen, J.K. (2001). The effectiveness of a group reading instruction program with poor readers in multiple grades. *Learning Disability Quarterly*, 24, 119 - 134.
- Roberts, G., Torgesen, J. K., Boardman, A., & Scammacca, N. (2008). Evidence-based strategies for reading instruction of older students with learning disabilities. *Learning Disabilities Research & Practice*, 23, 63 – 69.
- Robertson, D. (1996). Facilitating transformative learning: Attending to the dynamics of the educational helping relationship. *Adult Education Quarterly*, 47, 41 - 53.

- Rogers, D. (2009). The Working Alliance in Teaching and Learning: Theoretical Clarity and Research Implications. *International Journal for the Scholarship of Teaching and Learning*, 3, 1 – 9.
- Rogoff, B. (1998). Cognition as a collaborative process. In W. Damon (Series Ed.), D. Kuhn, & R. Siegler (Vol. Eds.), *Handbook of child psychology: Vol. 2. Cognition, language, and perception* (5th ed., pp. 679 - 744). New York: Wiley.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68 – 78.
- Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology*, 43, 450 - 461.
- Saft, E. W., & Pianta, R. C. (2001). Teachers' perceptions of their relationships with students: Effects of child age, gender, and ethnicity of teachers and children. *School Psychology Quarterly*, 16, 125 – 141.
- Schafer, J. L. & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, 7, 147-177.
- Shaywitz, S., Morris, R., & Shaywitz, B. (2008). The education of dyslexic children from childhood to young adulthood. *Annual Review of Psychology*, 59, 451 – 475
- Shaywitz, S. E., Fletcher, J. M., Holahan, J.M., Shneider, A. E., Marchione, K. E., Stuebing, K. K., Francis, D. J., Pugh, K. R., Shaywitz, B. A. (1999). Persistence of dyslexia: the Connecticut Longitudinal Study at adolescence. *Paediatrics*, 104, 1351 – 1359.

- Shirk, S. R., & Karver, M. (2003). Prediction of treatment outcome from relationship variables in child and adolescent therapy: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 71*, 452 - 464.
- Shirk, S. R., & Russell, R. L. (1996). *Change processes in child psychotherapy: Revitalizing treatment and research*. New York: Guilford Press.
- Shirk, S. R., & Saiz, C. (1992). The therapeutic alliance in child therapy: Clinical, empirical, and developmental perspectives. *Development and Psychopathology, 4*, 713–728.
- Taft, C. T., Murphy, C. M., Musser, P. H., & Remington, N. A. (2004). Personality, interpersonal, and motivational predictors of the working alliance in group cognitive-behavioural therapy for partner violent men. *Journal of Consulting and Clinical Psychology, 72*, 349 - 354.
- Torgesen, J. K., Alexander, A., Wagner, R., Rashotte, C., Voeller, K. K. S., & Conway, T. (2001). Intensive remedial instruction for children with severe reading disabilities. *Journal of Learning Disabilities, 34*, 33 - 58.
- Torgesen, J. K. (2005). Recent discoveries from research on remedial interventions for children with dyslexia. In M. Snowling & C. Hulme (Eds.), *The science of reading* (pp. 521–537). Oxford, UK: Blackwell.
- Vaughn, S., Hughes, M. T., Moody, S. W., & Elbaum, B. (2001). Instructional grouping for reading for students with LD: Implications for practice. *Intervention in School and Clinic, 36*, 131 - 137.

- Voeller, K. K. S. (2004). Dyslexia. *Journal of Child Neurology*, 19, 740 - 744.
- Wagner, R. K., Torgesen, J. K., & Rashotte, C. A. (1999). *Comprehensive Test of Phonological Processing*. Austin, TX: PRO-ED.
- Wechsler, D. (1999). *Wechsler abbreviated scale of intelligence*. New York: The Psychological Corporation.
- Weinstein, R. (1979). Student perceptions of teacher interactions with male high and low achievers. *Journal of Educational Psychology*, 71, 421 - 431.
- Wigfield, A., Eccles, J. S., Yoon, K. S., Harold, R. D., Arbreton, A. J. A., Freedman-Doan, C., & Blumenfeld, P. C. (1997). Change in children's competence beliefs and subjective task values across the elementary school years: A 3-year study. *Journal of Educational Psychology*, 89, 451-469.
- Willcutt, E. G., & Pennington, B. F. (2000). Psychiatric comorbidity in children and adolescents with reading disability. *Journal of Child Psychology and Psychiatry*, 41, 1039-1048.
- Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock-Johnson III*. Itasca, IL: Riverside Publishing.
- Zetzel, E. R. (1956). Current concepts of transference. *International Journal of Psychoanalysis*, 37, 369 - 375.

## Appendix A

### Reading Alliance Scale for Children (RASC-r) (Reading Teacher Form, revised from TASC-r)

	10 70	
Students's ID number	Program Day (please circle)	Date

Please rate your student's current presentation in the reading intervention on the following scales. Circle the number corresponding to your rating for each item. This form is to be completed immediately following the student's 10th and 70th program day.

**1. The student is able to work well with you on dealing with his/her reading difficulties.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

**2. The student considers you to be an ally.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

**3. The student works with you on solving his/her reading difficulties.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

**4. The student appears eager to have reading classes end.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

**5. The student looks forward to reading classes.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

**6. The student feels that you spend too much time focusing on his/her reading difficulties.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

**7. The student is resistant to coming to reading classes.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

**8. The student uses his/her time with you to work on reading difficulties.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

**9. The student finds it hard to work with you on solving his/her reading difficulties.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

**10. The student expresses positive emotion toward you, the reading teacher.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

**11. The student would rather not work on learning reading skills in your reading classes.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

**12. The student likes spending time with you, the reading teacher.**

1	2	3	4
Not Like My	A Little Like My	Mostly Like	My Very Much Like My
Student	Student	Student	Student

## Appendix B

### Reading Alliance Scale for Children (RASC-r) (Student Form, revised from TASC-r)

	70 125/Program End	
Students's ID number	Program Day (please circle)	Date

*We are going to read some sentences about your classes with the reading teacher. After reading the sentence, you decide how much the sentence is like you. Let's try this example:*

I play games with my reading teacher when we meet together.

*Would you say that is?*

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

Check the student's response with some probe that encourages effortful thought about the question, for example: *What makes you think that? Can you describe why you chose that one?*

*Here are the rest; remember there are no right or wrong answers, just how you feel.*

The following items may be read to the student, or, if the examiner is confident in the student's ability, the student may complete them on his/her own. In this case, please monitor the student carefully to ensure they are comprehending each item.

**1. I like spending time with my reading teacher.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

**2. I find it hard to work with my reading teacher on improving my reading.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

**3. I feel like my reading teacher is on my side and tries to help me.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

**4. I work with my reading teacher on improving my reading skill.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

**5. When I'm with my reading teacher, I want the classes to end quickly.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

**6. I look forward to classes with my reading teacher.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

**7. I feel like my reading teacher spends too much time working on my reading problems.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

**8. I'd rather do other things than meet with my reading teacher.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

**9. I use my time with my reading teacher to improve my reading.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

**10. I like my reading teacher.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

**11. I would rather not work on my reading with my reading teacher.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me

**12. I think my reading teacher and I work well together to deal with my reading problems.**

1	2	3	4
Not Like Me	A Little Like Me	Mostly Like Me	Very Much Like Me



## Certificate of Ethics Clearance for Human Participant Research

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DATE: 5/9/2011

PRINCIPAL INVESTIGATOR: FRIJTERS, Dr. Jan - Child and Youth Studies

FILE: 10-259 - FRIJTERS

TYPE: Masters Thesis/Project STUDENT: Selasie Dovoh  
SUPERVISOR: Jan Frijters

TITLE: The relationship between working alliance and treatment outcomes in remedial instruction for older dyslexic children

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### ETHICS CLEARANCE GRANTED

Type of Clearance: NEW

Expiry Date: 5/31/2012

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The Brock University Research Ethics Board has reviewed the above named research proposal and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement. Clearance granted from 5/9/2011 to 5/31/2012.

The Tri-Council Policy Statement requires that ongoing research be monitored by, at a minimum, an annual report. Should your project extend beyond the expiry date, you are required to submit a Renewal form before 5/31/2012. Continued clearance is contingent on timely submission of reports.

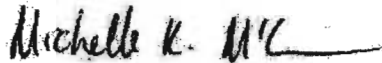
To comply with the Tri-Council Policy Statement, you must also submit a final report upon completion of your project. All report forms can be found on the Research Ethics web page.

In addition, throughout your research, you must report promptly to the REB:

- a) Changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- b) All adverse and/or unanticipated experiences or events that may have real or potential unfavourable implications for participants;
- c) New information that may adversely affect the safety of the participants or the conduct of the study;
- d) Any changes in your source of funding or new funding to a previously unfunded project.

We wish you success with your research.

Approved:



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Michelle McGinn, Chair  
Research Ethics Board (REB)

**Note:** Brock University is accountable for the research carried out in its own jurisdiction or under its auspices and may refuse certain research even though the REB has found it ethically acceptable.

If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of research at that site.